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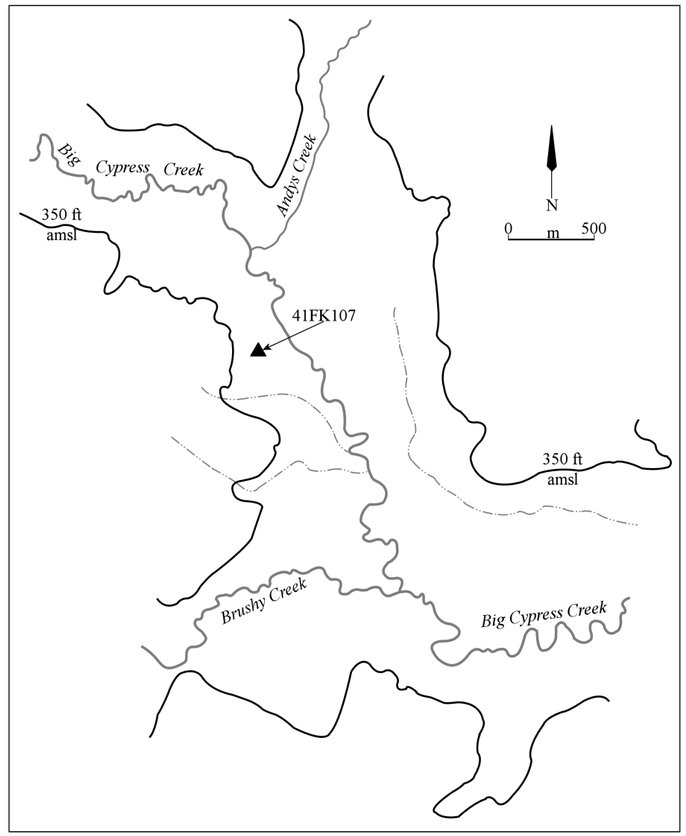

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Cover art: The location of the New Hope site in the Big Cypress Creek Valley

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The Younger Site (41MR6), Marion County, Texas

Timothy K. Perttula, Mark Walters, and Bo Nelson

The Younger site (41MR6) is located on a lower toe slope (250 ft. amsl) and alluvial terrace in the Arms Creek or Patton Creek valley at Lake O' the Pines. Arms Creek is an eastward-flowing tributary to Big Cypress Creek. At normal pool levels the Younger site is now under the waters of Lake O' the Pines.

When the site was first recorded by E. O. Miller of the National Park Service in 1951 (Miller et al. 1951), it was named the D. M. Collom site. The site was estimated to cover 6-8 acres, and was marked by several areas of bare ground where Caddo pottery sherds were collected (n=150), primarily plain sherds (n=115) and brushed/brushed-punctated sherds (n=33). Thurmond (1990:69) considers the site to be a large Titus phase settlement based on the identification of Ripley/Taylor Engraved, Glassell Engraved, Maydelle Incised, Bullard Brushed, and Pease Brushed-Incised sherds in the collection as well as a single Maud arrow point.

In April 1964, Buddy Calvin Jones excavated four burials in a prehistoric Caddo cemetery at what was now known as the A. V. Younger site (Figure 1). The burials were about 30 m north of a spring-fed creek, in a row situated near the edge of a small alluvial terrace (Figure 2). The burials each contained a single individual laid out in an extended, supine position with associated funerary offerings, primarily ceramic vessels. We documented a number of the ceramic vessels, as described below, but eight of the vessels recovered by Jones are now missing from the collection.

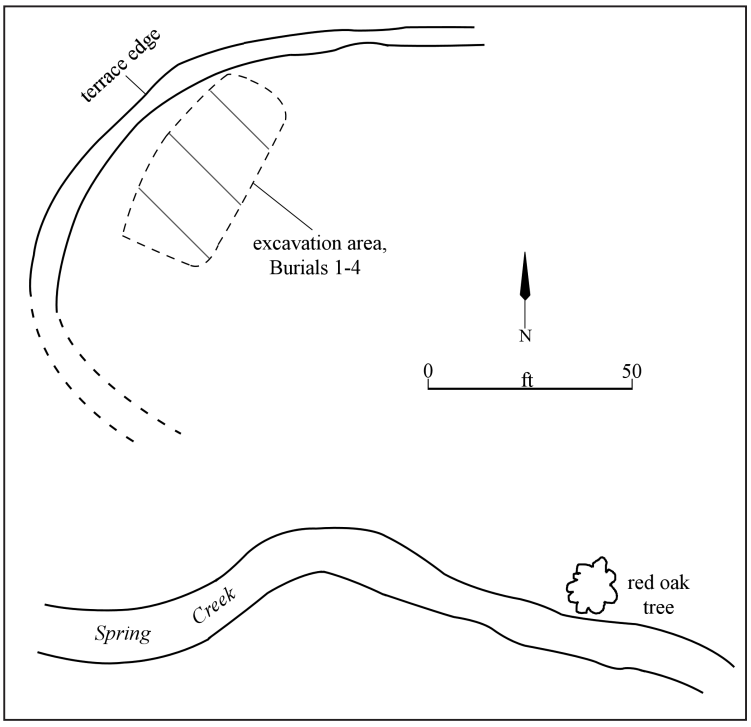

Figure 1. Buddy Calvin Jones' map of the A.V. Younger site cemetery area.

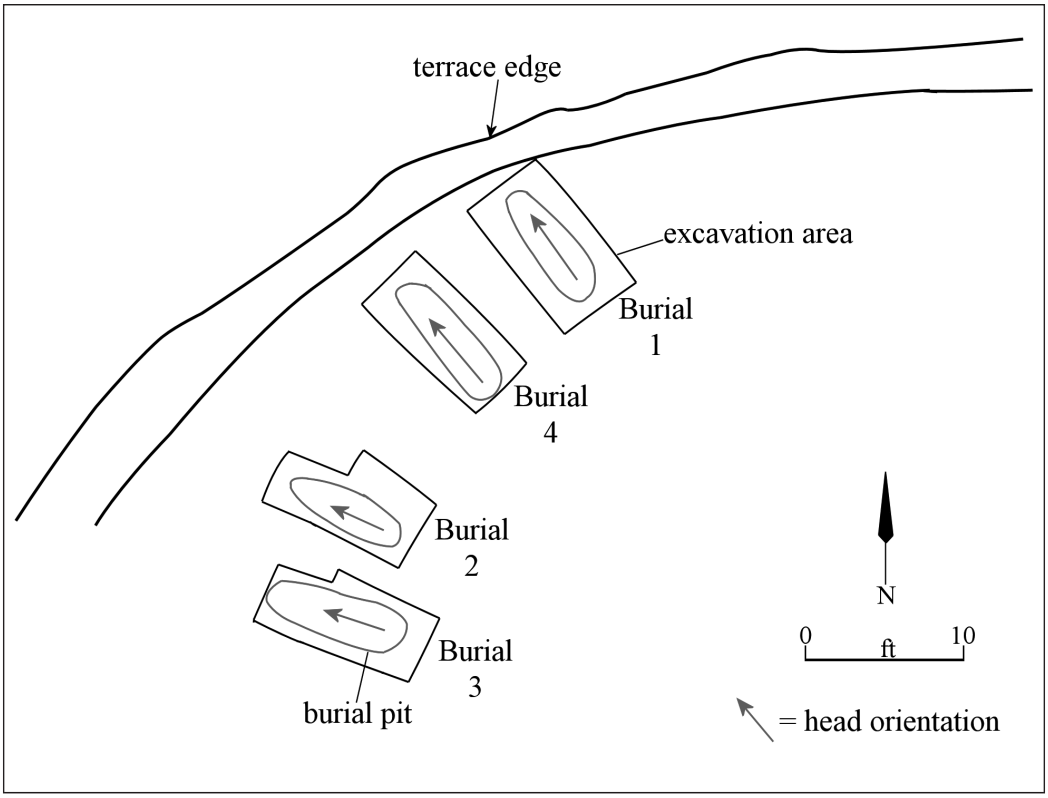

Figure 2. Plan of Burials 1-4 on the alluvial terrace.

Burial 1

Burial 1 had been placed in a grave that was 2.38 m in length, 0.86 m in width, and the floor of the grave lay at 0.74 m below the surface; based on the size of the burial pit, the deceased was an adult. The fill was comprised of midden sediments, ashes, and sherds from midden deposits that must occur on the site. Only small fragments of the skull and leg bones were preserved in the burial (Figure 3). The head of the deceased was oriented to the northwest.

Funerary offerings included a single broken Bonham arrow point placed near the lower right leg and four vessels arranged along the right side of the body from the shoulder to the upper right leg (see Figure 3). Vessel 1 in this burial was by the right shoulder. The other vessels—now missing from the collection—include a small incised-punctated carinated bowl, a Pease Brushed-jar, and a medium-sized plain bowl.

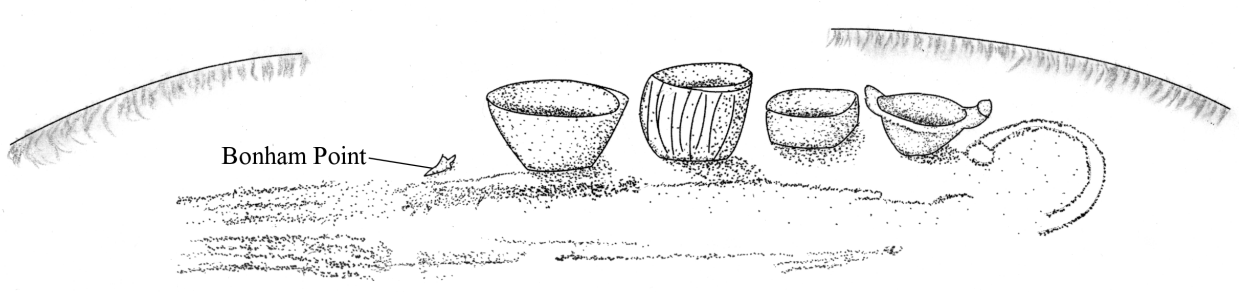

Figure 3. Burial 1 map drawn by Buddy Calvin Jones.

VESSEL NO.: Burial 1, Vessel 1, 2003.08.214

NON-PLASTICS AND PASTE: grog

VESSEL FORM: Bowl with two opposed rim peaks (Figure 4).

RIM AND LIP FORM: everted rim and a rounded lip

CORE COLOR: F (fired in a reducing environment and cooled in the open air)

INTERIOR SURFACE COLOR: reddish-brown; fire clouds on the rim

EXTERIOR SURFACE COLOR: reddish-brown; fire clouds on the rim and body

WALL THICKNESS (RIM, BODY, AND BASE IN MM): rim, 6.7 mm

INTERIOR SURFACE TREATMENT: none

EXTERIOR SURFACE TREATMENT: smoothed

HEIGHT (IN CM): 6.8; 9.5 cm at the rim peaks

ORIFICE DIAMETER (IN CM): 12.5

DIAMETER AT BOTTOM OF RIM OR NECK (IN CM): N/A

Figure 4. Plain bowl with rim peaks, Burial 1, Vessel 1 at the A. V. Younger site.

BASE DIAMETER (IN CM) AND SHAPE OF BASE: 5.5; circular and flat

ESTIMATED VOLUME (IN LITERS): 0.34

DECORATION (INCLUDING MOTIF AND ELEMENTS WHEN APPARENT): Plain

PIGMENT USE AND LOCATION ON VESSEL: none

TYPE AND VARIETY [IF KNOWN]: Unidentified plain ware

Burial 2

Burial 2 was that of an adult placed in a grave pit that was 1.85 m in length, 0.69 m in width (Figure 5), and the floor of the burial pit was identified at 0.71 m below surface. The burial fill was comprised of darkly-stained midden deposits with pottery sherds, charcoal, and lithic debris. Skeletal remains were poorly preserved, but suggest that the deceased was approximately 1.57 m in length, and was likely an adult female; the teeth were described by Jones as well-worn. The pit itself and the individual placed in an extended supine position in it, were oriented west-northwest, with the head facing in that direction.

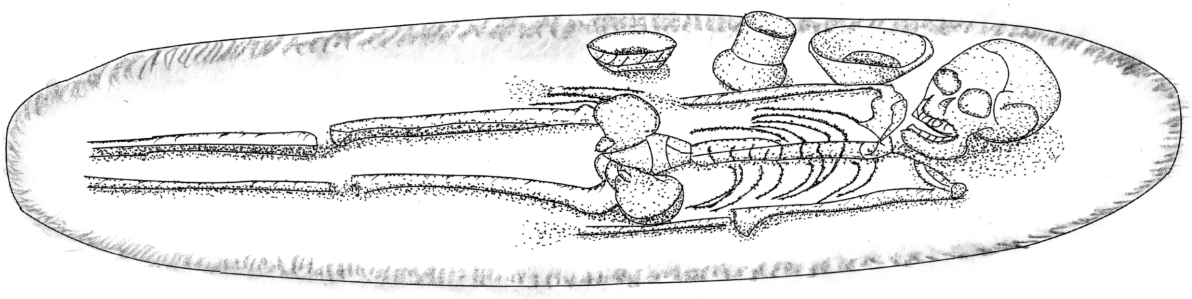

Figure 5. Plan map of Burial 2 drawn by Buddy Calvin Jones.

Funerary offerings placed with the deceased consisted of three ceramic vessels. They were placed on the right side of the body, from the shoulder to the hip (see Figure 5). Vessel 5, a plain bowl, was placed by the right shoulder; Vessel 6, an incised-punctated jar with suspension holes, was by the right arm; and Vessel 7, an incised-punctated carinated bowl, was by the right hip.

VESSEL NO.: Burial 2, Vessel 5; 2003.08.225

NON-PLASTICS AND PASTE: grog and bone

VESSEL FORM: Bowl (Figure 6)

RIM AND LIP FORM: direct rim and a rounded lip

CORE COLOR: F (fired in a reducing environment and cooled in the open air)

INTERIOR SURFACE COLOR: reddish-brown; fire clouding on the base

Figure 6. Plain bowl, Burial 2, Vessel 5, at the A. V. Younger site.

EXTERIOR SURFACE COLOR: dark yellowish-brown; fire clouds on the body and base

WALL THICKNESS (RIM, BODY, AND BASE IN MM): rim, 6.2 mm

INTERIOR SURFACE TREATMENT: none

EXTERIOR SURFACE TREATMENT: smoothed

HEIGHT (IN CM): 7.0

ORIFICE DIAMETER (IN CM): 15.7

DIAMETER AT BOTTOM OF RIM OR NECK (IN CM): N/A

BASE DIAMETER (IN CM) AND SHAPE OF BASE: 8.5; circular and flat base

ESTIMATED VOLUME (IN LITERS): 0.44

DECORATION (INCLUDING MOTIF AND ELEMENTS WHEN APPARENT): Plain

PIGMENT USE AND LOCATION ON VESSEL: none

TYPE AND VARIETY [IF KNOWN]: Unidentified plain ware

VESSEL NO.: Burial 2, Vessel 6; 2003.08.213

NON-PLASTICS AND PASTE: grog and hematite

VESSEL FORM: Jar with two opposed suspension holes (Figure 7) and a tall rim

RIM AND LIP FORM: Everted rim and a flat lip

CORE COLOR: G (fired in a reducing environment and cooled in the open air)

INTERIOR SURFACE COLOR: dark grayish-brown; organic residue on the rim

EXTERIOR SURFACE COLOR: reddish-brown; organic residue on the rim and body

WALL THICKNESS (RIM, BODY, AND BASE IN MM): rim, 6.6 mm

INTERIOR SURFACE TREATMENT: smoothed

EXTERIOR SURFACE TREATMENT: none

HEIGHT (IN CM): 11.5

ORIFICE DIAMETER (IN CM): 9.6

DIAMETER AT BOTTOM OF RIM OR NECK (IN CM): 8.5

Figure 7. Incised-punctated and appliqued jar, Burial 2, Vessel 6, at the A.V. Younger site.

BASE DIAMETER (IN CM) AND SHAPE OF BASE: 7.2; circular and flat

ESTIMATED VOLUME (IN LITERS): 0.66

DECORATION (INCLUDING MOTIF AND ELEMENTS WHEN APPARENT): The rim and body have incised-punctated motifs (Figure 7). The rim has opposed incised lines, repeated five times, filled with tool punctations; there are also two large opposed appliqued nodes on the rim. The vessel body has four sets of stacked alternating incised triangles. On the lower set, the incised triangles are filled with tool punctations; the upper set consists solely of incised triangles with a large appliqued node set near the apex of the triangles (Figure 7).

PIGMENT USE AND LOCATION ON VESSEL: none

TYPE AND VARIETY [IF KNOWN]: Unidentified utility ware

VESSEL NO.: Burial 2, Vessel 7, 2003.08.222

NON-PLASTICS AND PASTE: grog

VESSEL FORM: Carinated bowl

RIM AND LIP FORM: Everted rim and a rounded lip

CORE COLOR: G (fired in a reducing environment and cooled in the open air)

INTERIOR SURFACE COLOR: dark grayish-brown; fire clouds on the body

EXTERIOR SURFACE COLOR: yellowish-brown; organic residue on the rim-body juncture

WALL THICKNESS (RIM, BODY, AND BASE IN MM): rim, 5.0 mm

INTERIOR SURFACE TREATMENT: smoothed on the rim

EXTERIOR SURFACE TREATMENT: none

HEIGHT (IN CM): 3.8

ORIFICE DIAMETER (IN CM): 11.0

DIAMETER AT BOTTOM OF RIM OR NECK (IN CM): 9.0

BASE DIAMETER (IN CM) AND SHAPE OF BASE: 6.2; flat and circular

ESTIMATED VOLUME (IN LITERS): 0.25

DECORATION (INCLUDING MOTIF AND ELEMENTS WHEN APPARENT): The rim panel has 11 diagonal incised scrolls with a central circular to rectangular incised element. Each scroll is associated with triangular areas filled with small circular punctations (Figure 8). There are also two rows of small circular punctations under the lip and a third row at the vessel carination.

Figure 8. Incised-punctated carinated bowl, Burial 2, Vessel 7, at the A. V. Younger site.

PIGMENT USE AND LOCATION ON VESSEL: none

TYPE AND VARIETY [IF KNOWN]: Unidentified utility ware

Burial 3

This adult Caddo burial was placed in a 2.39 m long and 0.76 m wide grave (Figure 9). The floor of the grave was at 0.74 cm bs. The individual was placed in the pit in an extended supine position with the head facing towards the west-northwest. The burial fill was a darkly-stained midden deposit with pottery sherds and wood charcoal. Approximately 30 cm above the head of the burial was the top of a 30 cm diameter area of charcoal, burned bone, pottery sherds, and what was identified by Jones as a black chert Pogo point (i.e., large contracting stem dart point or biface; see Suhm and Jelks [1962:Plate 82]). This small feature was placed directly above the skull, and may represent the remains of a ceremony/ritual carried out by the Caddo as part of the interment.

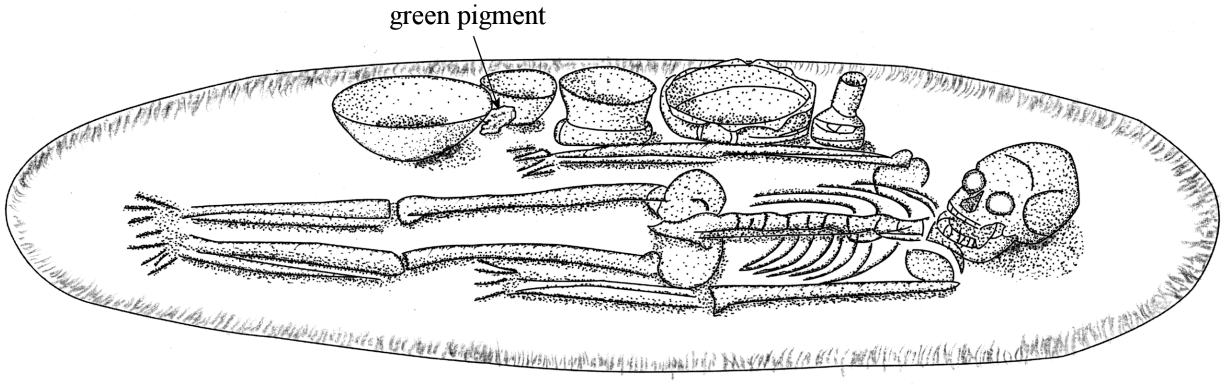

Figure 9. Burial 3 plan map drawn by Buddy Calvin Jones.

Burial 3 had five vessels and a small mass of green glauconitic clay pigment placed as funerary offerings with the deceased. Only two of the five vessels remain in the collection at the Gregg County Historical Museum. Both are plain bowls (Vessels 11 and 12) that had been placed along the right side of the body by the right leg (see Figure 9); the green pigment lay between these two vessels. The other vessels included a bottle by the right shoulder that had an engraved rattlesnake motif on it (see Walters 2006), a scalloped plain bowl by the right arm, and a plain jar by the lower right arm and hip.

VESSEL NO.: Burial 3, Vessel 11, 2003.08.1056

NON-PLASTICS AND PASTE: grog

VESSEL FORM: Bowl

RIM AND LIP FORM: Direct rim and a rounded lip

CORE COLOR: F (fired in a reducing environment and cooled in the open air)

INTERIOR SURFACE COLOR: yellowish-brown

EXTERIOR SURFACE COLOR: yellowish-brown

WALL THICKNESS (RIM, BODY, AND BASE IN MM): rim, 7.9 mm

INTERIOR SURFACE TREATMENT: smoothed

EXTERIOR SURFACE TREATMENT: smoothed

HEIGHT (IN CM): 4.5

ORIFICE DIAMETER (IN CM): 10.6

DIAMETER AT BOTTOM OF RIM OR NECK (IN CM): N/A

BASE DIAMETER (IN CM) AND SHAPE OF BASE: 5.0, circular and flat

ESTIMATED VOLUME (IN LITERS): 0.19

DECORATION (INCLUDING MOTIF AND ELEMENTS WHEN APPARENT): Plain (Figure 10)

PIGMENT USE AND LOCATION ON VESSEL: none

TYPE AND VARIETY [IF KNOWN]: Unidentified plain ware

Figure 10. Plain bowl, Burial 3, Vessel 11, from the A. V. Younger site.

VESSEL NO.: Burial 3, Vessel 12; 2003.08.1056

NON-PLASTICS AND PASTE: grog

VESSEL FORM: Bowl

RIM AND LIP FORM: Direct rim and a rounded lip

CORE COLOR: B (fired and cooled in a reducing environment)

INTERIOR SURFACE COLOR: dark grayish-brown

EXTERIOR SURFACE COLOR: dark grayish-brown; fire clouds on the rim and body

WALL THICKNESS (RIM, BODY, AND BASE IN MM): rim, 7.0 mm; body, 6.9 mm; base, 9.2 mm

INTERIOR SURFACE TREATMENT: smoothed

EXTERIOR SURFACE TREATMENT: smoothed

HEIGHT (IN CM): 7.9

ORIFICE DIAMETER (IN CM): 18.3

DIAMETER AT BOTTOM OF RIM OR NECK (IN CM): N/A

BASE DIAMETER (IN CM) AND SHAPE OF BASE: 10.0; circular and flat

ESTIMATED VOLUME (IN LITERS): 0.58

DECORATION (INCLUDING MOTIF AND ELEMENTS WHEN APPARENT): Plain (Figure 11)

PIGMENT USE AND LOCATION ON VESSEL: none

TYPE AND VARIETY [IF KNOWN]: Unidentified plain ware

Figure 11. Plain bowl, Burial 3, Vessel 12, at the A. V. Younger site.

Burial 4

Burial 4 at the A. V. Younger site was that of an adult individual who had been placed in an extended supine position in a 2.13 m long and 0.89 m grave; the bottom of the grave lay at 0.71 m below the surface. The burial pit was oriented northwest-southeast, with the head facing towards the northwest (Figure 12); skeletal remains were very fragmentary. The burial fill was comprised of darkly-stained midden deposit with numerous ceramic sherds and some pieces of lithic debris.

Six ceramic vessels had been placed as funerary offerings in the grave, all along the right side of the body; four of the vessels have been identified in the Gregg County Historical Museum collections. Near the right elbow was an engraved bottle (Vessel 13), followed by an engraved scalloped rimmed bowl by the lower right arm, a plain bowl and a plain carinated bowl (Vessels 15 and 16) were near the right hand, a large engraved carinated bowl was set by the upper right leg, and a Pease Brushed-Incised jar also was set by the upper right leg (see Figure 12).

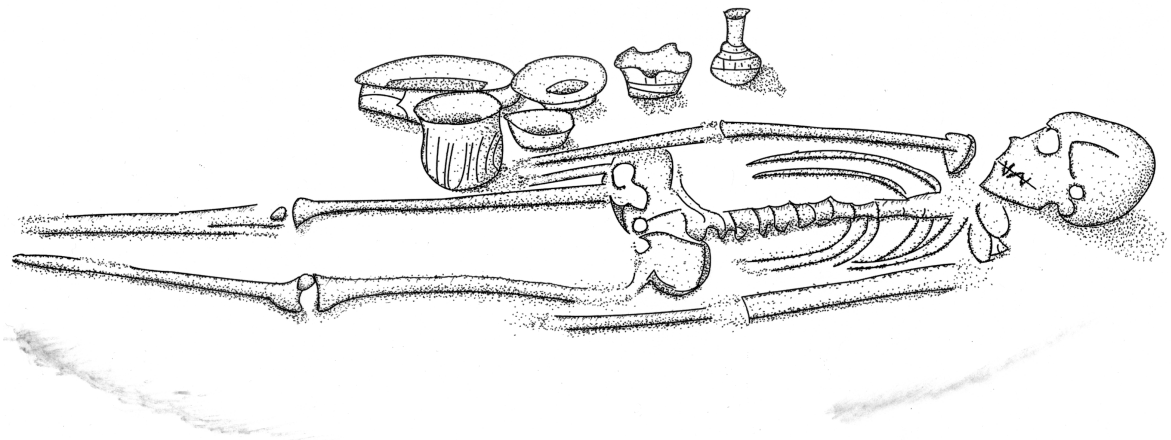

Figure 12. Burial 4 plan map drawn by Buddy Calvin Jones.

VESSEL NO.: Burial 4, Vessel 13; 2003.08.36

NON-PLASTICS AND PASTE: grog; sandy paste

VESSEL FORM: Bottle with a straight neck

RIM AND LIP FORM: Direct rim and a rounded lip

CORE COLOR: G (fired in a reducing environment and cooled in the open air)

INTERIOR SURFACE COLOR: dark grayish-brown

EXTERIOR SURFACE COLOR: yellowish-brown; fire clouds on the rim, body, and base

WALL THICKNESS (RIM, BODY, AND BASE IN MM): neck, 6.7 mm

INTERIOR SURFACE TREATMENT: none

EXTERIOR SURFACE TREATMENT: none

HEIGHT (IN CM): 12.0

ORIFICE DIAMETER (IN CM): 3.5

DIAMETER AT BOTTOM OF RIM OR NECK (IN CM): 3.7; maximum body diameter is 7.2 cm

BASE DIAMETER (IN CM) AND SHAPE OF BASE: 4.0; circular and rounded

ESTIMATED VOLUME (IN LITERS): 0.19

DECORATION (INCLUDING MOTIF AND ELEMENTS WHEN APPARENT): The vessel body has a series of horizontal engraved lines below stacks of rectangular engraved zones with closely-spaced vertical engraved lines, curvilinear lines, and large and small excised pendant triangles (Figure 13). One of the upper horizontal engraved lines has excised pendant triangles whose apex points towards the vessel base

PIGMENT USE AND LOCATION ON VESSEL: red pigment in the engraved lines on the vessel body

TYPE AND VARIETY [IF KNOWN]: Unidentified fine ware

Figure 13. Engraved bottle, Burial 4, Vessel 13, at the A. V. Younger site.

VESSEL NO.: Burial 4, Vessel 15; 2003.08.217

NON-PLASTICS AND PASTE: grog

VESSEL FORM: Bowl

RIM AND LIP FORM: Direct rim and a rounded base

CORE COLOR: B (fired and cooled in a reducing environment)

INTERIOR SURFACE COLOR: dark grayish-brown

EXTERIOR SURFACE COLOR: dark grayish-brown; fire clouds on the rim, body, and base

WALL THICKNESS (RIM, BODY, AND BASE IN MM): rim, 8.9 mm

INTERIOR SURFACE TREATMENT: none

EXTERIOR SURFACE TREATMENT: none

HEIGHT (IN CM): 5.0

ORIFICE DIAMETER (IN CM): 9.4

DIAMETER AT BOTTOM OF RIM OR NECK (IN CM): N/A

BASE DIAMETER (IN CM) AND SHAPE OF BASE: 6.0; circular and flat

ESTIMATED VOLUME (IN LITERS): 0.19

DECORATION (INCLUDING MOTIF AND ELEMENTS WHEN APPARENT): Plain (Figure 14)

PIGMENT USE AND LOCATION ON VESSEL: none

TYPE AND VARIETY [IF KNOWN]: Unidentified plain ware

Figure 14. Plain bowl, Burial 4, Vessel 15, at the A. V. Younger site.

VESSEL NO.: Burial 4, Vessel 16; 2003.08.215

NON-PLASTICS AND PASTE: grog

VESSEL FORM: Carinated bowl

RIM AND LIP FORM: Direct rim and a rounded lip

CORE COLOR: B (fired and cooled in a reducing environment)

INTERIOR SURFACE COLOR: dark grayish-brown

EXTERIOR SURFACE COLOR: dark grayish-brown; fire clouds on the rim and body

WALL THICKNESS (RIM, BODY, AND BASE IN MM): rim, 5.2 mm

INTERIOR SURFACE TREATMENT: smoothed

EXTERIOR SURFACE TREATMENT: smoothed

HEIGHT (IN CM): 6.5

ORIFICE DIAMETER (IN CM): 11.0

DIAMETER AT BOTTOM OF RIM OR NECK (IN CM): 10.3

BASE DIAMETER (IN CM) AND SHAPE OF BASE: 7.0; circular and flat

ESTIMATED VOLUME (IN LITERS): 0.43

DECORATION (INCLUDING MOTIF AND ELEMENTS WHEN APPARENT): Plain (Figure 15)

PIGMENT USE AND LOCATION ON VESSEL: none

TYPE AND VARIETY [IF KNOWN]: Unidentified plain ware

Figure 15. Plain carinated bowl, Burial 4, Vessel 16, at the A. V. Younger site.

VESSEL NO.: Burial 4, Vessel 18; 2003.08.206

NON-PLASTICS AND PASTE: grog

VESSEL FORM: Jar with short neck

RIM AND LIP FORM: Everted rim and rounded lip

CORE COLOR: G (fired in a reducing environment and cooled in the open air)

INTERIOR SURFACE COLOR: dark grayish-brown

EXTERIOR SURFACE COLOR: yellowish-brown; fire clouds on the rim and body

WALL THICKNESS (RIM, BODY, AND BASE IN MM): rim, 6.3 mm

INTERIOR SURFACE TREATMENT: smoothed

EXTERIOR SURFACE TREATMENT: none

HEIGHT (IN CM): 10.8

ORIFICE DIAMETER (IN CM): 10.0

DIAMETER AT BOTTOM OF RIM OR NECK (IN CM): 9.1

BASE DIAMETER (IN CM) AND SHAPE OF BASE: 7.5; circular and flat

ESTIMATED VOLUME (IN LITERS): 0.65

DECORATION (INCLUDING MOTIF AND ELEMENTS WHEN APPARENT): The vessel rim has horizontal brushing marks as well as a single row of triangular tool punctations at the rim-body juncture (Figure 16). The vessel body is divided into six panels by vertical appliqued fillets that extend almost to the vessel base. The panels are filled with brushed-incised marks and lines.

PIGMENT USE AND LOCATION ON VESSEL: none

TYPE AND VARIETY [IF KNOWN]: Pease Brushed-Incised

Figure 16. Pease Brushed-Incised jar, Burial 4, Vessel 18, at the A. V. Younger site.

Ceramic Sherds from Unknown Contexts at the Site

A total of 290 ceramic sherds were collected by Buddy Calvin Jones from unknown contexts at the A. V. Younger site. The sherd assemblage includes 153 plain body and base sherds and 137 decorated sherds (Table 1). The plain to decorated sherd ratio is a relatively low 1.12, which is consistent with a Late Caddo ceramic component in this part of East Texas. The presence of a single Keno Trailed bowl sherd further suggests that this assemblage of sherds may be from a 17th century Caddo occupation.

More than 70% of the decorated sherds in the A. V. Younger collection are from utility wares. Given the likely Late Caddo age of this ceramic assemblage, it is not surprising that 84% of the utility ware sherds and 60% of all the decorated sherds have brushed decorations (see Table 1). Both Harleton Appliqued sherds in the collection also have brushing marks surrounding the appliqued elements. Another body sherd simply has a straight appliqued ridge. Two body sherds are from Belcher Ridged, *var. Belcher* jars (see Girard 2007:15); vessels of this type are typically present in post-A.D. 1500 Belcher phase sites in northwestern Louisiana.

Table 1. Decorated sherds from non-burial contexts at the A. V. Younger site.

Decorative element	Rim	Body	N
Utility Ware			
straight appliqued ridged	-	4	4
curvilinear appliqued fillet and parallel brushed surrounding	-	1	1
appliqued fillet chevron and directional brushed	-	1	1
opposed brushed	-	3	3
parallel brushed	-	78	78
parallel brushed-incised	-	1	1
parallel incised lines	-	6	6
curvilinear incised zone filled with tool punctates	-	1	1
vertical ridged	-	2	2
Subtotal, utility wares	-	97	97
Fine Ware			
exterior red-slipped	-	3	3
circle and scroll element*	-	1	1
circle and sunburst element*	-	1	1
curvilinear and rectilinear elements	-	1	1
excised pendant triangle*	-	1	1
hooked arm element**	-	1	1
horizontal line and excised pendant triangle*	-	1	1
int. engraved line	-	1	1
opposed engraved lines	-	1	1

Table 1., cont.

Decorative element	Rim	Body	N
parallel engraved lines	-	6	6
parallel engraved lines with excised pendant triangles*	-	4	4
engraved scroll*	-	1	1
engraved scroll and pendant triangles*	-	1	1
single straight engraved line	-	11	11
straight engraved line with spurs	-	1	1
straight engraved line and excised zone	-	1	1
straight and curvilinear engraved lines	-	1	1
single curvilinear engraved line	-	2	2
broad curvilinear trailed lines+	-	1	1
Subtotal, fine wares	-	40	40
Totals	-	137	137

*Ripley Engraved; **Taylor Engraved; +Keno Trailed

The one Keno Trailed body sherd in the collection is from a bowl. It has broad curvilinear trailed lines (see Table 1). Other fine wares include 10 sherds from Ripley Engraved vessels, primarily sherds with portions of the pendant triangle motif (Ripley Engraved, *var. McKinney*, see Perttula et al. 2010), one of the latest (post-A.D. 1600) motifs in Titus phase fine wares. Also found among the fine wares in the A. V. Younger site sherd collection is a Taylor Engraved body sherd with a hooked arm element (see Table 1).

Approximately 90% of the sherds from the A. V. Younger site are from vessels that are grog-tempered. The remainder are tempered with bone, either as the sole temper or in co-association with grog.

Based on an examination of the sherd core or cross-section, most of the sherds (67%) are from vessels that were fired in a reducing environment, but then cooled in the open air, leaving one or both vessel surfaces with a thin oxidized lens visible in the core (Teltser 1993:Figure 2f-h). Another 20% of the sherds are from vessels that were fired and cooled in a reducing environment (Teltser 1993:Figure 2b), and the remainder of the sherds (13%) are from vessels that were fired and cooled in a high oxygen or oxidizing environment (Teltser 1993:Figure 2a).

SUMMARY AND CONCLUSIONS

In 1964, Buddy Calvin Jones completed investigations at the A. V. Younger site (41MR6) on Arms Creek in the Big Cypress Creek basin and the Lake O' the Pines area. In his work, he gathered a small sherd collection (n=290 sherds) and found and excavated four Caddo burials on a small terrace landform. Given the placement and spacing of these burials, it is likely that there were more burials at this cemetery location that Jones did not excavate. Based on the collections we recently documented from the site at the Gregg County Historical Museum, as well as notes and drawings prepared by Jones, these four burials were adults that had been placed in an extended supine position in a grave pit, with their heads oriented

west-northwest and northwest, and a moderate assortment of funerary offerings were placed with each of the deceased individuals. Funerary offerings consisted of 18 ceramic vessels from four burials (4.5 vessels per burial), one Bonham arrow point from Burial 1, and one green clay pigment mass with another one of the burials.

The sherd collection from the A. V. Younger site collection gathered by Buddy Calvin Jones is from a late Titus phase (ca. post-A.D. 1600) occupation. It is characterized by high proportions of brushed utility ware jar sherds, as well as Harleton Appliqued and Belcher Ridged, *var. Belcher* jar sherds. The fine wares are distinctive in that there is a Keno Trailed bowl sherd in the assemblage, along with a Taylor Engraved body sherd, and a number of late style Ripley Engraved carinated bowl body sherds. The plain and decorated sherds are primarily from grog-tempered vessels that were fired in a reducing or low oxygen environment. The Titus phase ceramic assemblage recognized in the sherd collection is consistent with the temporal and cultural affiliation previously offered by Thurmond (1990).

The 10 vessels we have documented in the A. V. Younger collection are grog-tempered; 10% have also been tempered with burned bone and other 10% have both grog and hematite temper inclusions. With our documentation supplemented by notes compiled by Jones, 50% of the 18 vessels are plain; the plain vessels are small (0.19-0.58 liters in volume). Two vessels are Pease Brushed-Incised jars (one is only 0.65 liters in volume), and three other small vessels (carinated bowls and jars with volumes of 0.25-0.66 liters) have incised-punctated decorations but are not Maydelle Incised vessels. There are two small engraved bottles, including one described as having an engraved rattlesnake motif on it, and two engraved bowls and carinated bowls; one of these had a scalloped lip.

The distinctive assortment of vessels from the four excavated burials at the A. V. Younger site do not appear to be associated with the previously recognized Titus phase component. Rather, the burials appear to be from an older component, one that likely dates to the Middle Caddo period (ca. A.D. 1200-1425). It is not known if there is a Middle Caddo domestic habitation area at the A. V. Younger site. We offer this conclusion about the age of the four burials from the A. V. Younger cemetery for the following reasons: (a) the absence of Titus phase decorated ceramic vessels, including Ripley Engraved as well as brushed utility wares; (b) the high proportion of plain vessels in the assemblage, which is not characteristic of most Titus phase burial assemblages in the Big Cypress Creek basin; (c) the occurrence of Pease Brushed-Incised vessels, which commonly were made in used in Middle Caddo period types, just as they were in later Titus phase contexts; (d) the engraved rattlesnake bottle and the engraved scalloped bowl, which are particularly characteristic of Middle Caddo ceramic assemblages in this part of East Texas (Hart and Perttula 2010; Walters 2006, 2010); and (e) the fact that one Bonham arrow point was among the funerary offerings in one burial. Bonham arrow points are characteristic burial funerary offerings in Middle Caddo sites in the region (cf. Perttula et al. 2007; Walters and Haskins 1998).

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Documentation of Archaeological Materials from the Cherokee Lake Site (41RK132), Rusk County, Texas

Timothy K. Perttula

INTRODUCTION

The Cherokee Lake site was discovered by Buddy Calvin Jones in 1956, after a terrace area along Tiawichi Creek, inundated by the construction of Lake Cherokee in 1947, had been graded for the construction of fish hatcheries there (Jones 1968:48). Jones identified a single burial and a large storage pit in Area A at the southern end of the terrace, where there was a shallow (0-30 cm bs) midden deposit (Jones 1968:Figure 4).

The burial in Area A is an Historic Nadaco Caddo grave that probably dates to the early 18th century based on the recovery of 15 blue glass beads. This strand of beads was placed near the legs of the deceased individual. The Caddo person had been placed in an extended supine position in a pit that was 1.83 m long and 0.76 cm in width, with the head facing towards the west. The estimated depth of the grave was 0.76 m (Jones 1968:52), and its fill was a dark charcoal-stained midden.

In addition to the strand of glass beads, three ceramic vessels had been placed as funerary offerings in the grave along with a Fresno arrow point by the upper left leg (see Jones 1968:Plate 8b). One Simms Engraved vessel was on the left side of the body, near the foot of the grave, while a second Simms Engraved vessel had been placed by the individual's right foot, along with a Maydelle Incised jar. A plain clay elbow pipe had been placed inside the jar. Two of the vessels from this burial have been recently documented in the collections of the Gregg County Historical Museum in Longview, Texas; the Maydelle Incised vessel is no longer in the collection.

VESSELS FROM HISTORIC CADDO BURIAL

VESSEL NO.: 2003.08.1058; right side of the body, by the feet

NON-PLASTICS AND PASTE: grog, bone, and hematite

VESSEL FORM: Carinated bowl with a short rim

RIM AND LIP FORM: Inverted rim and a rounded, exterior folded lip

CORE COLOR: C (incompletely oxidized during firing)

INTERIOR SURFACE COLOR: reddish-brown

EXTERIOR SURFACE COLOR: reddish-brown

WALL THICKNESS (RIM, BODY, AND BASE IN MM): rim, 6.0 mm; body, 5.7 mm

INTERIOR SURFACE TREATMENT: smoothed

EXTERIOR SURFACE TREATMENT: smoothed

HEIGHT (IN CM): 15.6+

ORIFICE DIAMETER (IN CM): 21.0

DIAMETER AT BOTTOM OF RIM OR NECK (IN CM): 21.6

BASE DIAMETER (IN CM) AND SHAPE OF BASE: N/A

ESTIMATED VOLUME (IN LITERS): 2.9+

DECORATION (INCLUDING MOTIF AND ELEMENTS WHEN APPARENT): The short rim panel has four widely-spaced sets of vertical engraved lines (Figure 1). Three sets have seven vertical engraved lines, and the other set has eight closely-spaced vertical engraved lines.

PIGMENT USE AND LOCATION ON VESSEL: none

TYPE AND VARIETY [IF KNOWN]: Simms Engraved

Figure 1. Simms Engraved carinated bowl from near the right foot area of the Cherokee Lake site Historic Caddo burial.

VESSEL NO.: 2003.08.1139; near the left foot

NON-PLASTICS AND PASTE: grog

VESSEL FORM: Carinated bowl with a short rim

RIM AND LIP FORM: Inverted rim and a rounded, exterior folded lip
CORE COLOR: F (fired in a reducing environment and cooled in the open air)

INTERIOR SURFACE COLOR: yellowish-brown

EXTERIOR SURFACE COLOR: yellowish-brown; fire clouds on the rim and body; organic residue on the rim and body

WALL THICKNESS (RIM, BODY, AND BASE IN MM): rim, 7.5 mm; body, 7.4 mm; base, 10.3 mm

INTERIOR SURFACE TREATMENT: smoothed

EXTERIOR SURFACE TREATMENT: burnished

HEIGHT (IN CM): 21.3

ORIFICE DIAMETER (IN CM): 22.0

DIAMETER AT BOTTOM OF RIM OR NECK (IN CM): 22.8

BASE DIAMETER (IN CM) AND SHAPE OF BASE: N/A

ESTIMATED VOLUME (IN LITERS): 4.2

DECORATION (INCLUDING MOTIF AND ELEMENTS WHEN APPARENT): The rim has horizontal panels filled with upper and lower excised pendant triangles (Figure 2). The ends of each panel are excised brackets. Dividing the panels from one another are large cross-hatched engraved brackets.

PIGMENT USE AND LOCATION ON VESSEL: none

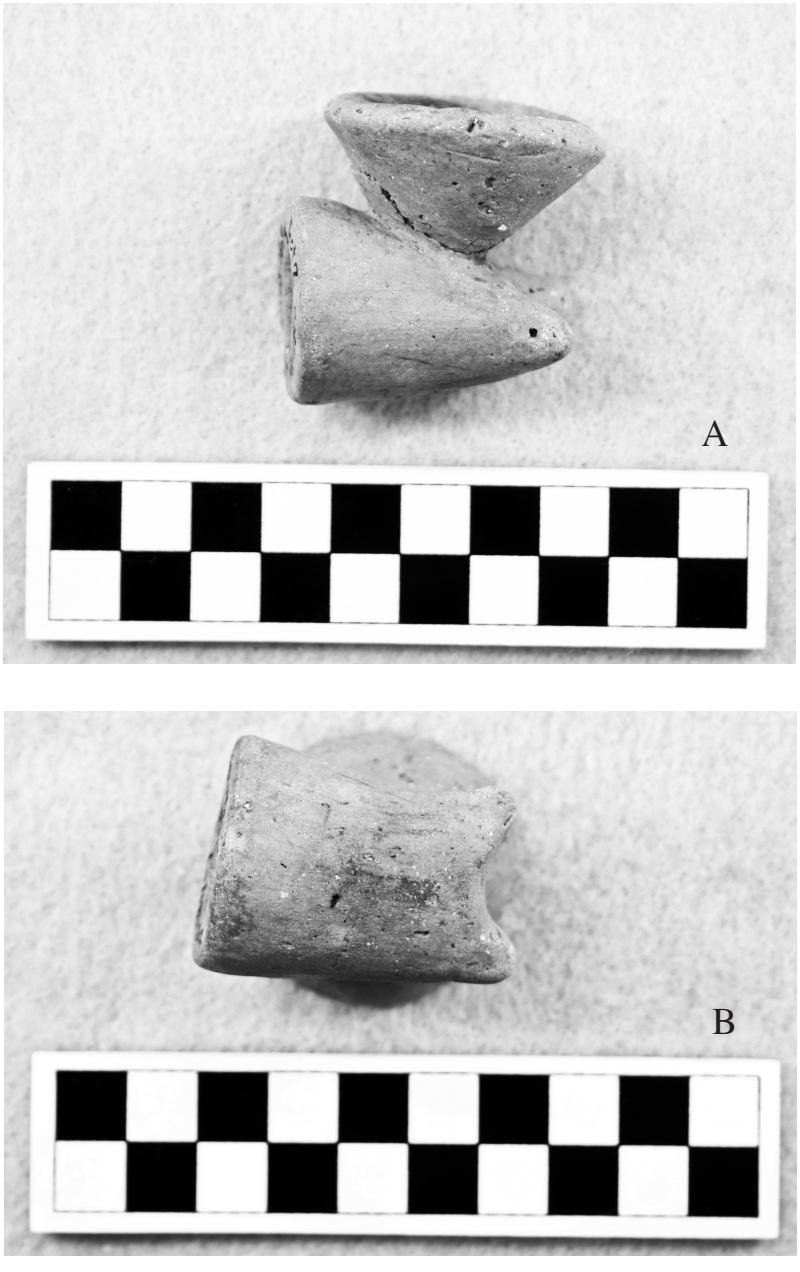
TYPE AND VARIETY [IF KNOWN]: Simms Engraved

Figure 2. Simms Engraved carinated bowl near the left foot of the Historic Caddo burial at the Cherokee Lake site.

Pipe from Historic Caddo Burial

The ceramic pipe from the Cherokee Lake Historic Caddo burial had been placed inside the Bullard Brushed jar at the time of the burial's interment. The plain bone-tempered elbow pipe has a flaring bowl and a short bi-lobed stem end (Figure 3a-b).

The pipe is 45.0 mm in height, with a 39.0 mm long stem (including the lobes). The short bowl is only 19.0 mm in height, with 5.7 mm thick walls. The orifice diameter of the bowl is wide (37.7 mm) relative to its height. The stem is thick (10.0 mm), with inner and outer orifice diameters of 14.0 mm and 29.0 mm, respectively.



Figures 3a and 3b. Ceramic elbow pipe from the Historic Caddo burial at the Cherokee Lake site: a, side view; b, looking down on the stem, showing its bi-lobed end.

Vessel Sections from the Storage Pit

The storage pit excavated by Jones at the Cherokee Lake site is primarily associated with a pre-A.D. 1200 Caddo occupation, based on the recovery of Hickory Engraved and Dunkin Incised pottery sherds and Catahoula, Alba, and Bonham arrow points; this occupation probably created the midden deposits found in Area A. The pit itself was 1.2 x 1.6 m in dimensions and extended to ca. 1.1 m below surface, extending into the red clay B-horizon (Jones 1968:56). At the top of the graded pit feature was a small Bullard Brushed jar and a large fragment of another Bullard Brushed jar, while portions of a large bowl were found on the pit floor.

VESSEL NO.: 2003.08.1959; jar section found at the top of the storage pit

NON-PLASTICS AND PASTE: grog

VESSEL FORM: Jar

RIM AND LIP FORM: Everted rim and rounded lip

CORE COLOR: B (fired and cooled in a reducing environment)

INTERIOR SURFACE COLOR: dark grayish-brown

EXTERIOR SURFACE COLOR: very dark grayish-brown

WALL THICKNESS (RIM, BODY, AND BASE IN MM): rim, 8.6 mm; body, 9.2 mm

INTERIOR SURFACE TREATMENT: smoothed

EXTERIOR SURFACE TREATMENT: none

HEIGHT (IN CM): 24.0+

ORIFICE DIAMETER (IN CM): 22.0

DIAMETER AT BOTTOM OF RIM OR NECK (IN CM): 21.0

BASE DIAMETER (IN CM) AND SHAPE OF BASE: N/A

ESTIMATED VOLUME (IN LITERS): 6.9+

DECORATION (INCLUDING MOTIF AND ELEMENTS WHEN APPARENT): The rim has horizontal brushing marks. The vessel body has a combination of horizontal, diagonal, vertical, and overlapping brushing marks that cover the entire body surface (Figure 4).

PIGMENT USE AND LOCATION ON VESSEL: none

TYPE AND VARIETY [IF KNOWN]: Bullard Brushed

Figure 4. Bullard Brushed jar placed near the top of the storage pit at the Cherokee Lake site.

VESSEL NO.: 2003.08.1958, found on pit floor

NON-PLASTICS AND PASTE: grog

VESSEL FORM: Bowl with two suspension holes just below the rim, and a third suspension hole on the vessel body (Figure 5)

RIM AND LIP FORM: Direct rim and rounded lip

CORE COLOR: B (fired and cooled in a reducing environment)

INTERIOR SURFACE COLOR: very dark grayish-brown

EXTERIOR SURFACE COLOR: dark grayish-brown

WALL THICKNESS (RIM, BODY, AND BASE IN MM): rim, 5.9 mm; body, 6.2 mm; base, 11.2 mm

INTERIOR SURFACE TREATMENT: smoothed

Figure 5. Plain bowl from the floor of a storage pit at the Cherokee Lake site.

EXTERIOR SURFACE TREATMENT: smoothed

HEIGHT (IN CM): 18.0 (from Jones 1968:57)

ORIFICE DIAMETER (IN CM): 26.0

DIAMETER AT BOTTOM OF RIM OR NECK (IN CM): N/A

BASE DIAMETER (IN CM) AND SHAPE OF BASE: N/A

ESTIMATED VOLUME (IN LITERS): 3.7

DECORATION (INCLUDING MOTIF AND ELEMENTS WHEN APPARENT): Plain

PIGMENT USE AND LOCATION ON VESSEL: none

TYPE AND VARIETY [IF KNOWN]: Unidentified plain ware

SUMMARY AND CONCLUSIONS

The Gregg County Historical Museum collections from the Cherokee Lake site (41RK132) include two large Simms Engraved carinated bowls and a distinctive plain and bi-lobed elbow pipe from an Historic Nadaco Caddo burial. Glass beads reported by Jones (1968) to have been recovered from this burial indicates it dates to the early part of the 18th century A.D. The remainder of the collection consists of two vessel sections Jones excavated from a large storage pit filled with trash. The vessel section from the top of the pit was part of a large Bullard Brushed jar; this jar is likely associated with the Historic Nadaco Caddo occupation. The remaining vessel section is a large plain bowl with suspension holes from the pit floor. This vessel section occurs in association with pre-A.D. 1200 Caddo ceramic sherds, long-stemmed clay pipe sherds, and stemmed arrow point styles.

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The Killdeer Site (41SM379): A Middle Caddo Site in Northern Smith County, Texas

Timothy K. Perttula and Mark Walters

INTRODUCTION

The Killdeer site was reported in July 2007 by Mark Walters, based on a surface reconnaissance of the site area and a small surface collection of artifacts, primarily prehistoric Caddo pottery sherds. The site is situated on a lower upland slope (410 feet amsl) about 190 m northeast of Loves Branch, a small stream in the Harris Creek drainage in the Sabine River basin. Soils are a Redsprings very gravelly sandy loam, 8-25% slopes. Darkly-stained sediments and burned animal bone suggest that there is a Caddo midden deposit at the northern end of the site.

Artifacts

The artifacts (n=119) collected from the Killdeer site include 75 Caddo ceramic sherds, a piece of burned clay, one burned animal bone, one Gary dart point, two expedient flake tools, one chipped adze, 36 pieces of lithic debris, a ground stone mano, and one piece of quartzite fire-cracked rock.

Ceramic Sherds

The sherds from the Killdeer site include 46 plain sherds and 29 decorated sherds. The plain to decorated sherd ratio is 1.59, which is indicative of the latter part of the Middle Caddo age in this part of the upper Sabine River basin. The plain sherds are represented by one rim, 44 body, and one base. Only 2% of the plain sherds are from vessels tempered with crushed and burned bone; rather, the sherds are from grog-tempered vessels.

The decorated sherds from the site are dominated by sherds from utility ware vessels, probably cooking jars (Table 1). Approximately 90% of the decorated sheds are from utility wares, and only 10% are from fine ware bowls and carinated bowls. Only 3.5% of the decorated sherds are from bone-tempered vessels; the vast majority of the sherds are tempered with grog.

The principal utility wares have brushed (52% of the decorated sherds), brushed-incised (3.4%), and brushed-punctated (10.3%) decorations; 65.7% of the decorated sherds from the Killdeer site have brushed decorations. These sherds are probably from Bullard Brushed vessels. Other utility wares have appliqued (3.4%), incised (13.8%), and punctated (6.9%) decorative elements. One of the incised body sheds has a vertical and opposed incised decorative element that occurs with regularity on Pease Brushed-Incised vessels (Suhm and Jelks 1962:Plate 60k).

As previously mentioned, sherds from fine ware vessels are not common in the decorated sherd assemblage from the site, accounting for only 10% of the assemblage (see Table 1). The fine ware sherds include two body sherds with single straight engraved lines as well as a bowl or carinated bowl body sherd with a red slip on both interior and exterior vessel surfaces. Generally speaking, red-slipped sherds are only common in upper Sabine River Caddo sites that were occupied during the Middle Caddo period (Perttula 2011a, 2011b).

Table 1. Decorated sherds from the Killdeer Site (41SM379).

Decorative element	Rim	Body	% Bone-tempered
Utility Ware			
straight appliqued ridge	-	1	0.0
opposed brushed	-	2	0.0
parallel brushed	-	13	7.7
parallel brushed-incised	-	1	0.0
horizontal brushed with tool punctates thru the brushing	1	-	0.0
parallel brushed with tool punctates thru the brushing	-	2	0.0
vertical and opposed incised lines	-	1	0.0
opposed incised lines	-	1	0.0
parallel incised lines	-	1	0.0
straight incised lines	-	1	0.0
cane punctated rows	1	-	0.0
fingernail punctated rows	1	-	0.0
Fine Ware			
straight engraved lines	-	2	0.0
int./ext. red-slipped	-	1	0.0
Totals	3	26	3.5

Chipped Stone Tools and Lithic Debris

The one dart point in the collection is a narrow contracting stem Gary point, *var. Camden*, made from a local quartzite. The *var. Camden* is a late Woodland dart point form, estimated by Schambach (1982) to date from ca. A.D. 200-700. There are also two expedient flake tools, probably used for cutting and scraping tasks, made from chert, and a bifacial adze made from a local quartzite.

The lithic debris includes chert (n=31, 6.4% cortical), petrified wood (n=4, 75% cortical), and quartzite (n=1, 0% cortical, heat-treated); its presence at the site indicates that tools were made and refurbished there during at least one of the occupations. The petrified wood and quartzite raw materials are considered to be locally available, probably in stream gravels along the major streams, most likely the Sabine River. The chert debris are probably from non-local sources (given the low proportion of cortical flakes), and is a product of the refurbishing, maintenance, and resharpening of already completed chert tools that were brought to the site.

Ground Stone Tool

The one ground stone tool is a ferruginous sandstone mano-pitted stone. Both surfaces of the cobble have smoothed grinding areas as well as pitted areas in the central part of the tool.

SUMMARY AND CONCLUSIONS

The Killdeer site is one of many Middle Caddo habitation sites on tributaries to the Sabine River in this part of the Upper Sabine River basin (Perttula et al. 1993; Perttula and Walters 2012; Walters 2003, 2006, 2008; Walters and Haskins 1998, 2000; Walters and Perttula 2011); it also has a Woodland period component that likely dates from ca. A.D. 200-700. The Middle Caddo component at the Killdeer site is marked by a ceramic assemblage dominated by sherds from utility ware vessels (probably cooking jars) decorated with brushing, incised lines, punctated elements, and appliqued ridges, and a low percentage of engraved and red-slipped fine wares. Sherds from vessels with brushed decorations are by far the most common in the small decorated sherd assemblage; this, combined with a plain to decorated sherd ratio of 1.59, suggests that the Killdeer site was likely occupied by a Caddo group in the latter part of the Middle Caddo period, after ca. A.D. 1300.

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Additional Lake Bob Sandlin Sites with Documented Collections of Prehistoric Lithic and Ceramic Artifacts

Timothy K. Perttula, Bo Nelson, and Patti Haskins

INTRODUCTION

This is the third in a series of publications that concern the documentation of prehistoric artifact collections from sites found along the shoreline of Lake Bob Sandlin in the Big Cypress Creek basin of East Texas (Nelson and Perttula 2003; Perttula et al. 2010). These documentation efforts have demonstrated that sites at the lake have diverse temporal and spatial patterns, with an intensive Caddo occupation from the Middle (ca. A.D. 1200-1425) to Late Caddo (ca. A.D. 1430-1680) periods (Perttula and Nelson 2003).

The Sites

Our recent documentation efforts include moderate collections of prehistoric ceramic (n=974 sherds, including 711 plain rim, body, and base sherds and 263 decorated rim and body sherds) and lithic artifacts (n=324, primarily consisting of 276 pieces of lithic debris, 21 dart points, and 12 bifaces), as well as a few pieces of burned clay and daub; there are very small amounts of late 19th-early 20th century artifacts from three of the sites. These are from five sites along the now-inundated Big Cypress Creek valley.

Dead Oak or Trailer House Cove (41CP288)

Nelson and Perttula (2003:37) described the Dead Oak or Trailer House Cove site as covering about 2 acres of an upper ridge slope (330-350 ft. amsl) ca. 400 m south of an old channel of Big Cypress Creek. Archaeological materials documented by Nelson and Perttula (2003) suggest that the principal component at the site was a pre-A.D. 1200/1300 Early Caddo occupation, although Woodland and Late Archaic dart points have also been reported from the site.

The recently documented collection from the Dead Oak site has 340 sherds. This includes 241 plain sherds (five rim, 12 base, and 224 body sherds) and 99 rim and body sherds (Table 1). The plain to decorated sherd ratio (P/DR) is 2.43. Most of the sherds are from vessels tempered with grog (71%), but 28% are from bone-tempered vessels, and 0.3% are from hematite-tempered vessels. Of the decorated sherds, 86% are from utility wares, and the remaining 14% are from engraved fine wares.

The most common utility wares have fingernail punctated (35% of the decorated sherds) and tool punctated (20%) decorative elements (see Table 1), either in rows or freely placed on the rim and vessel body. Approximately 18% of the decorated sherds (and 73% of the rims in the collection) have incised designs, primarily horizontal, diagonal, and cross-hatched elements from Canton Incised, Dunkin Incised, and Davis Incised vessels. Approximately 6% of the sherds have incised-punctated elements. These include straight and rectangular incised zones filled with tool and fingernail punctations; these may be from Pennington Punctated-Incised vessels. This combination of decorative elements and sherds from identified types, along with the P/DR value of 2.43, and the fact that 6% of the decorated sherds are brushed, suggests that the principal Caddo use of the site took at ca. A.D. 1200-1300, in the first part of the Middle Caddo period.

Table 1. Decorated sherds from the Dead Oak site.

Decorative element	Rim	Body	N
Utility Ware			
parallel brushed	-	6	6
cross-hatched incised lines	-	1	1
diagonal incised lines	4	-	4
diagonal and opposed incised lines	1	1	2
horizontal incised lines	3	-	3
parallel incised lines	-	8	8
zoned incised-punctated, rectangular	1	1	2
straight incised line adjacent to tool punctated zone	-	2	2
parallel incised lines adjacent to fingernail punctates	-	1	1
straight and opposed incised lines and tool punctated zone	-	1	1
tool punctated rows	-	16	16
tool punctated, free	-	2	2
single tool punctate	-	2	2
single fingernail punctate	-	4	4
fingernail punctated, free	-	11	11
fingernail punctated rows	-	20	20
Subtotal, utility wares	9	76	85
Fine Ware			
diagonal engraved lines	2	-	2
diagonal and opposed engraved lines	-	1	1
parallel lines and excised zone	-	1	1
parallel engraved lines	-	4*	4
straight engraved line	-	1	1
concentric engraved lines	-	1	1
circular engraved lines with hatched pendant triangles	-	2	2
curvilinear engraved lines	-	2	2
Subtotal, fine wares	2	12	14
Totals	11	88	99

*includes one bottle sherd

It was noted during the documentation process that thin Caddo sherds were primarily from the southeastern portion of the site, while thicker sherds, many of them plain (possibly from an earlier Caddo occupation or even a Woodland occupation), were from the northern portion of the landform. These latter sherds were in an area where various dart points had also been recovered.

The lithic artifact assemblage in the most recently documented collection from the Dead Oak site appears to be almost exclusively the product of pre-A.D. 800 Woodland, Late Archaic, and possible Middle Archaic occupations. The one Caddo associated lithic artifact is a partially pecked and polished celt preform of siliceous shale (with a source area in the Ouachita Mountains of southeastern Oklahoma and Red River gravels) (see Turner et al. 2011:260). The remainder of the assemblage includes 11 dart points, three biface fragments, a chipped stone flake tool, three ground stone tools, and 159 pieces of lithic debris.

The dart points from the site include a dart point tip made from a non-local orange novaculite as well as others that can be identified by type and probable temporal period of use and manufacture (cf. Turner et al. 2011). The earliest point in the collection is a probable Middle Archaic form with side notches and a flat base; it is made from a heat-treated novaculite. The five Late Archaic points are represented by three quartzite Yarbrough points, a quartzite Wells point, and a quartzite Williams dart point. The Woodland dart points at the Dead Oak site include Gary (n=2) and Godley (n=1) specimens made from a local quartzite, as well as a narrow parallel-stemmed dart point (cf. Darl) made from a grayish-black novaculite.

The biface fragments are made from local quartzite (n=2) and a non-local white novaculite (n=1). The last chipped stone tool is a side scraper made from a non-local white chert. Approximately 33% of the chipped stones in this collection are made from non-local lithic raw materials that appear to have originated from Ouachita Mountains source areas and/or the Red River gravels. Other than the aforementioned celt, the other ground stone tools include a ferruginous sandstone bi-pitted stone and a quartzite hammerstone fragment.

The lithic debris from the site in the documented collection is dominated by local raw materials, namely petrified wood (n=95) and quartzite (n=63). The one remaining piece of lithic debris is of quartz, a hard to knap non-local raw material whose source areas lie in bedrock formations in the Ouachita Mountains and in Red River gravels well to the north of the Dead Oak site.

West Island (41TT208)

The West Island site was first recorded by Southern Methodist University during the archaeological survey at Lake Bob Sandlin done in the early 1970s. The site form states that there was a "low density or amounts of lithic and ceramics," and that the site "must be seasonal camp." It was located on an elevated landform (335 ft. amsl) in the Big Cypress Creek floodplain. It is now a small island in the lake during normal pool elevations.

The ceramic assemblage from the West Island documented collection includes 34 decorated rim and body sherds (Table 2), 79 plain body sherds, and 11 plain base sherds. Most of the plain body and base sherds are from two vessel sections, one tempered with bone (n=20 sherds) and the other with bone and grog (n=39 sherds).

The decorated sherds from this site are dominated by utility wares (88%), particularly sherds from vessels with incised (50% of the decorated sherds), punctated (26%), incised-punctated (6%), and brushed (6%) decorative elements. The incised sherds are from Canton Incised (cross-hatched decorative element) and Dunkin Incised (diagonal and diagonal-opposed incised elements). Among the fine wares, which account for only 12% of the decorated sherds from the West Island site, the grog-tempered red-slipped sherds may be from Sanders Plain vessels (cf. Brown 1996). Given the predominance of incised and punctated sherds in the documented collection, the relatively low frequency of sherds with brushing, and the red-slipped sherds, the West Island Caddo occupation likely took place in the early part of the Middle Caddo period.

Discounting the sherds from the two previously mentioned vessel sections, the majority of the sherds from the West Island collection are from vessels tempered with grog (79%). Approximately 5.9% of the sherds are bone tempered, and 15.4% are from grog-bone-tempered vessels.

Table 2. Decorated sherds from the West Island site.

Decorative element	Rim	Body	N
Utility Ware			
parallel appliqued ridges	-	1	1
parallel brushed	-	2	2
cross-hatched incised lines	-	1	1
diagonal incised lines	1	-	1
diagonal-opposed incised lines	-	1	1
parallel incised lines	-	7	7
parallel and opposed incised lines	-	2	2
straight incised line	-	4	4
straight and opposed incised lines	-	1	1
diagonal incised line and tool punctated-filled triangle	1	-	1
diagonal and vertical incised lines and tool punctated-filled triangle	1	-	1
fingernail punctated rows	-	3	3
fingernail punctated, free	-	1	1
linear tool punctated	-	1	1
tool punctated rows	-	3	3
tool punctated, free	1	-	1
Subtotal, utility wares	4	26	30
Fine Ware			
int./ext. red-slipped	-	2	2
horizontal and diagonal engraved lines	-	1	1
straight engraved line*	-	1	1
Subtotal, fine wares	0	4	4
Totals	4	30	34

*bottle sherd

In addition to the ceramic vessel sherds, there is a single piece of burned clay in the recently documented collections from the West Island site as well as two pieces of daub. The former may be the remnants of a clay-lined hearth or earth oven, while the daub is an indication that there may be remnants of burned clay and thatch-covered Caddo structures at the site.

The prehistoric lithic artifacts are sparse in this collection from the West Island. They include two heat-treated pieces of local quartzite lithic debris and a quartzite fire-cracked rock.

East Island (41TT209)

Nelson and Perttula (2003:58) noted that this site is on a small island (the top of an alluvial terrace landform or alluvial knoll in the Big Cypress Creek floodplain) just to the north of the Road Islands or Titus Islands site (41TT804), and a short distance east of the West Island site. Archaeological materials known to come from East Island suggest that it was occupied in Late Caddo Titus phase times (ca. A.D. 1430-1680). When the site was recorded by Southern Methodist University in the 1970s, only a low density of prehistoric ceramic sherds and lithic debris were reported to have come from it.

The ceramic assemblage from recently documented collections comprises 50 sherds, 23 plain body and base sherds and 27 decorated rim and body sherds (Table 3). The P/DR is 0.85, consistent with a Late Caddo ceramic component in the Big Cypress stream basin. The one fine ware engraved body sherd, however, has finely executed opposed diagonal engraved lines, and compares favorably to Holly Fine Engraved, a pre-A.D. 1300 ceramic type in this part of East Texas (see Story 2000).

Table 3. Decorated sherds from the East Island site.

Decorative element	Rim	Body	N
Utility Ware			
parallel brushed	-	5	5
opposed curvilinear incised lines	-	1	1
diagonal incised lines	2	-	2
horizontal incised lines	1	-	1
parallel incised lines	-	5	5
parallel incised lines and tool punctated zone	-	1	1
horizontal neck banding	1	-	1
parallel pinched-ridged	-	1	1
fingernail punctated, free	-	1	1
fingernail punctated rows	-	6	6
tool punctated rows	-	2	2
Subtotal, utility ware	4	22	26
Fine Ware			
opposed diagonal engraved lines	-	1	1
Subtotal, fine ware	0	1	1
Totals	4	23	27

The other decorated sherds from the East Island site are from utility ware vessels, including all four rims. The sherds have punctated (33% of all the decorated sherds), incised (33%), brushed (19%), incised-punctated (4%), neck banded (4%), and pinched (4%) decorative elements (see Table 3). The brushed sherds are likely from Bullard Brushed vessels, the one neck banded sherd is from a LaRue Neck Banded jar, and the pinched-ridged body sherd is likely from a Killough Pinched vessel; the appearance of these utility types is consistent with a Late Caddo occupation at the site. The incised, incised-punctated, and punctated sherds may be from a variety of different Late Caddo utility wares, although none can be identified to a currently defined type.

The sherds are from vessels primarily tempered with grog (84%). Others are tempered with grog and bone (n=3, 6%) or bone (n=6, 12%)

The only lithic artifacts from the East Island site are 14 pieces of lithic debris from on-site chipped tool manufacture and maintenance activities. They include 93% that are on local raw materials (10 quartzite and three petrified wood) and 7% on non-local cherts (dark brown chert). About 57% of the lithic debris have cortical remnants, suggesting that pebbles and small cobbles were brought to the site for reduction, probably to produce suitable flakes for tools.

A possible mid- to late 19th century use of the East Island site is noted by the one yellow ware body sherd and a patinated hand-made bottle glass lip. The peak period for yellow ware production in the United States was in the 1860s and 1870s (Leibowitz 1985).

TXU Park and Boat Ramp (41TT758)

The TXU Park and Boat Ramp site, estimated to cover about 0.6 acres, is on a southward sloping ridge slope (330-340 ft. amsl) about 600 m north of an old and now inundated old channel of Big Cypress Creek. In addition to evidence of Late Archaic use, the main prehistoric occupation appears to have taken place by Caddo peoples before A.D. 1200 (Nelson and Perttula 2003:51).

The ceramic assemblage from this site includes 221 plain sherds (seven rims, eight base, and 206 body) and 69 decorated sherds (Table 4). The P/DR is 3.20, consistent with a pre-A.D. 1200 Caddo ceramic component in the Big Cypress Creek valley. The majority of the sherds are from grog-tempered vessels (83%), while 17% are bone-tempered.

Table 4. Decorated sherds from the TXU Park or Boat Ramp site.

Decorative element	Rim	Body	N
Utility Ware			
diagonal incised lines	-	1	1
diagonal opposed incised lines	1	7	8
parallel incised lines	-	5	5
straight incised lines	-	3	3
circular incised zone with small circular punctates	-	1	1
parallel incised lines adjacent to a tool punctated zone	-	1	1
fingernail punctated, free	1	10	11
fingernail punctated rows	-	20	20
single fingernail punctate	-	6	6
tool punctated rows	-	3	3
Subtotal, utility wares	2	57	59
Fine Ware			
diagonal engraved lines	1	-	1
horizontal engraved lines	1*	-	1
horizontal and diagonal opposed engraved lines	-	1*	1
parallel engraved lines	-	1	1
parallel engraved lines and excised triangle	-	1	1
parallel and opposed engraved lines	-	1*	1
single curvilinear engraved line	-	1	1
single straight engraved line	-	2	2
vertical engraved lines	1	-	1
Subtotal, fine wares	3	7	10
Totals	5	64	69

*includes a bottle sherd

Almost 86% of the decorated sherds from the TXU Park and Boat Ramp site are from utility ware vessels (see Table 4); 14.5% of the decorated sherds are from engraved fine ware vessels. Most of these have fingernail and tool punctated decorative elements (58% of all the decorated sherds) or geometric incised elements (25%). Among the latter are Dunkin Incised vessel sherds. The remaining utility wares have incised-punctated elements, with triangular or circular incised zones filled with punctations. One of these

sherds may be from a Crockett Curvilinear Incised vessel because it has circular incised zones filled with small circular punctations (Suhm and Jelks 1962:Plate 17).

Among the engraved fine ware sherds are three body sherds from Holly Fine Engraved bottles and carinated bowls as well as one Hickory Engraved bottle sherd (see Table 4). The Holly Fine Engraved bottle sherds have horizontal and opposed engraved lines on the vessel body, while the carinated bowl sherd has parallel engraved lines with a a large excised triangular area (Suhm and Jelks 1962:Plate 39). Their occurrence among the TXU Park and Boat Ramp site decorated ceramics, along with the P/DR value of 3.20, suggests that the main Caddo occupation here predates ca. A.D. 1200.

The lithic artifacts from the collections recently documented from the TXU Park and Boat Ramp site suggest the site was also occupied, probably episodically, during the Middle Archaic, Late Archaic, and Woodland periods. The one possible Middle Archaic point is a side-notched specimen made from a non-local light grayish-brown chert. The Late Archaic points include three quartzite Yarbrough points and a quartzite parallel-stemmed form. Two contracting stem Gary dart points, made from quartzite and a brownish-red chert, are evidence of use of the site during the Woodland period. In addition to the dart points, there are two biface preforms made from local petrified wood and quartzite as well as a bifacially chipped knive made from a local brownish-red chert.

There is very slight evidence for the historic use of the site in the late 19th century. There is a single ca. 1870-1890s lead-glazed stoneware sherd in the TXU Park and Boat Ramp site collection.

Road Islands or Titus Islands (41TT804)

The Road Islands or Titus Islands site was described by Nelson and Perttula (2003:58) as situated on an alluvial terrace landform (335 ft. amsl) that is an island in the lake when lake levels are below normal flood pool. It covers about 0.75 acres. Archaeological materials previously documented from the site indicate that it was occupied during Late Archaic, Woodland, and post-1890 times, but the principal occupation took place during the Middle Caddo period. There is evidence that the site has been disturbed by looting activities in the past.

The Caddo ceramic assemblage in the recently documented collections from the Road islands or Titus Islands site consists of 169 sherds. Approximately 80% (n=136) are plain rim (n=5), base (n=7), and body (n=124) sherds, and the remainder are decorated rim and body sherds (Table 5). The P/DR is 4.12. As with the other Caddo ceramic assemblages at Lake Bob Sandlin, the majority of the sherds from the site are from grog-tempered vessels (76.9%). The remaining 23.1% are from bone-tempered vessels.

The diversity in the decorated sherds from the site suggests that there may have been two Caddo occupations, one that primarily dates before A.D. 1200 (with Holly Fine Engraved and Hickory Engraved, cane punctated sherds), and a second component that dates after ca. A.D. 1200 (perhaps dating even as late as ca. A.D. 1400) with brushed (n=6) and appliqued (n=1) utility ware sherds. There are no clear Late Caddo, Titus phase (i.e., Ripley Engraved) engraved fine ware sherds in the collection, which suggests this later component may have instead taken place during the Middle Caddo period.

The utility wares are dominated by sherds from incised vessels (36% of all the decorated sherds), as well as sherds with cane, fingernail, and tool punctated elements (24%) (see Table 5). One rim sherd has diagonal incised lines and incised triangles filled with small circular punctations.

Table 5. Decorated sherds from the Road Islands or Titus Islands site.

Decorative element	Rim	Body	N
Utility Ware			
parallel appliqued ridge	-	1	1
parallel brushed	-	6	6
horizontal incised lines	1	-	1
parallel incised lines	-	8	8
straight incised line	-	3	3
diagonal incised-circular punctated-filled triangular zone	1	-	1
cane punctated zone	-	1	1
fingernail punctated rows	-	3	3
tool punctated rows	-	2	2
tool punctated, free	-	2	2
Subtotal, utility wares	2	26	28
Fine Ware			
exterior red-slipped*	-	1	1
diagonal opposed engraved lines	-	1	1
diagonal opposed engraved lines and excised triangle area	1	-	1
horizontal engraved lines	1	-	1
straight engraved line	-	1	1
Subtotal, fine wares	2	3	5
Totals	4	29	33

*bottle sherd

In addition to one red-slipped bottle body sherd, the engraved fine wares include a Hickory Engraved rim and two Holly Fine Engraved rim and body sherds. The body sherd has fine diagonal and opposed engraved lines, while the rim sherd (likely from a carinated bowl, see Suhm and Jelks 1962:Plate 39a, e, g) has vertical and diagonal opposed sets of fine engraved lines that are separated by narrow vertical and triangular-shaped excised areas.

The lithic artifacts in the Roads Islands or Titus Islands site include four dart points, six bifaces, two ground stone tools, four cores, 101 pieces of lithic debris, and three quartzite fire-cracked rocks; most of these artifacts apparently relate to prehistoric occupations earlier than the Caddo occupation. The dart points are from both Woodland and Middle Archaic occupations. The Woodland period dart points consist of a Gary point (made from a local brownish-red chert), a Kent point made from a local red chert, and a Godley point of non-local gray novaculite. The possible Middle Archaic point in the collection, made from a local quartzite, has shallow side notching and a resharpened blade.

There are biface fragments and early stage bifaces in the documented collection, made from quartzite (n=3), gray novaculite (n=1), light gray chert (n=1), and gray chert (n=1). Both of the ground stone tools are grinding slab fragments of local ferruginous sandstone.

The cores are on heat-treated quartzite (n=4) pebbles with multiple flake removals. The lithic debris is from several different raw materials: quartzite (n=73), petrified wood (n=7), hematite (n=1), light gray chert (n=1), gray chert (n=18), and volcanic tuff (n=1), possibly related to Manning Fused Glass, a raw material available primarily in the Neches, Sabine, and Trinity river basins in East Texas. More than 80% of the debris are from local raw materials (quartzite, petrified wood, and hematite), while the remainder (cherts and volcanic tuff) are from non-local raw material sources in East Texas and along the Red River to the north.

There is also a small (n=12) assortment of historic artifacts from the previously noted historic occupation in the collections recently documented from the Roads Islands or Titus islands site. This includes cut nails (1820-1891, n=1), wire nails (post-1891, n=2), stoneware sherds (n=3), plain whiteware body sherds (n=4), amber bottle glass (n=1), and clear tableware glass (n=1). This historic occupation probably dates from the late 19th to the early 20th century, based on the presence of both cut and wire nails, post-1870s salt glaze stoneware with an interior lead glaze, and early 20th century Bristol glaze stoneware sherds, one with a blue cobalt exterior.

SUMMARY AND CONCLUSIONS

A lengthy drought in East Texas in 2010 and 2011 has significantly lowered water levels at all artificial reservoirs in the region, Lake Bob Sandlin being no exception. The lower water levels have exposed landforms with previously recorded sites on them, among them sites that had not been accessible since the late 1970s. Archaeological materials occur on them and are being collected by avocational archaeologists, as attested to by our recent documentation of prehistoric lithic and ceramic artifacts in avocational archaeological collections from five different sites at the lake: Dead Oak (41CP288), West Island (41TT208), East Island (41TT209), TXU Park and Boat Ramp (41TT758), and Road Islands or Titus Islands (41TT804).

These sites have evidence of prehistoric occupations in the now-inundated Big Cypress Creek valley that date as early as the Middle Archaic (ca. 8000-5000 cal years B.P.) to as late as the Late Caddo period (A.D. 1430-1680). Three of the five sites (Dead Oak, TXU Parks and Boat Ramp, and Road Islands or Titus Islands) were occupied during multiple periods, including Middle Archaic, Late Archaic, Woodland, Formative-Early Caddo, and Middle Caddo periods. The most intensive occupations at these three sites occurred between ca. A.D. 850-1400, primarily after ca. A.D. 1200. In the case of the other two sites, they were apparently occupied only by Caddo peoples in pre-A.D. 1200 (East Island), Middle Caddo (West Island), and Late Caddo times (East Island). These Caddo occupations likely represent domestic habitation sites that were occupied year-round by a small group of horticultural to agricultural peoples that lived in farmsteads and hamlets dispersed across the Big Cypress Creek valley. The Archaic and Woodland period components represent the encampments of relatively mobile hunter-gatherer foragers, although some late Woodland sites in this part of East Texas may be the product of more sedentary occupations by peoples culturally related to later Caddo peoples.

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The Caddo Ceramic Assemblage from the New Hope Site (41FK107), Franklin County, Texas

Timothy K. Perttula and Bo Nelson

INTRODUCTION

The New Hope site (41FK107) is located on an alluvial terrace (330-340 ft. amsl) on the west side of the Big Cypress Creek valley, about 200 m west of the channel at the time it was inundated by Lake Bob Sandlin (Figure 1). The site covers an estimated 2.5 acres. It is about 1 km north of the confluence of Brushy Creek and Big Cypress Creek. In addition to what would have been the broad floodplain of Big Cypress Creek, there are gently sloping upland landforms (340-490 ft. amsl) to the northwest, west, and south of the site, and these landforms are dissected by several intermittent streams.

Previous archaeological work at the New Hope site indicates that the landform on which it sits has been occupied on several different occasions in prehistoric times. This includes use during the Late Paleoindian, Late Archaic, Woodland, Early Caddo, Middle Caddo, and Late Caddo period times (Nelson and Perttula 2003, 2006). The most extensive prehistoric use of the New Hope site appears to have taken place in Early and Middle Caddo period times (ca. A.D. 1000-1400); the 20-30 grave-sized looter holes and burials that have been reported to have eroded out along the shoreline at the site are evidence of Caddo cemetery use during this era (Nelson and Perttula 2003:43). The ceramic assemblages from these components have been recently documented in a private collection, and are the subject of this article. Appendix 1 provides information on the chipped stone tools in this private collection.

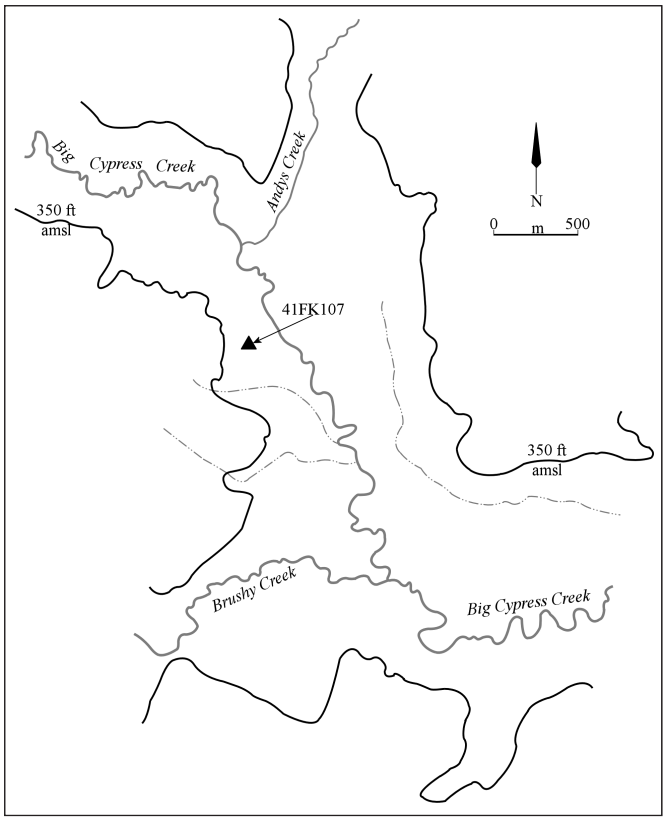

Figure 1. The location of the New Hope site in the Big Cypress Creek valley. Figure prepared by Lance Trask.

Environmental Setting

The site is located in the modern Post Oak Savannah (Diggs et al. 2006) (Figure 2). The Post Oak Savannah is a narrow strip of woodlands between the Pineywoods to the east and south, and the Blackland Prairie vegetational region to the west, north and northwest, no closer than 20 km away. According to Schmidly (2002:371), the "topography is level to gently rolling and slopes gently from the northwest to the southeast…the post oak region can best be described as an ecotone between the eastern deciduous forest and the tall-grass prairie. The area supports a stunted, open forest dotted

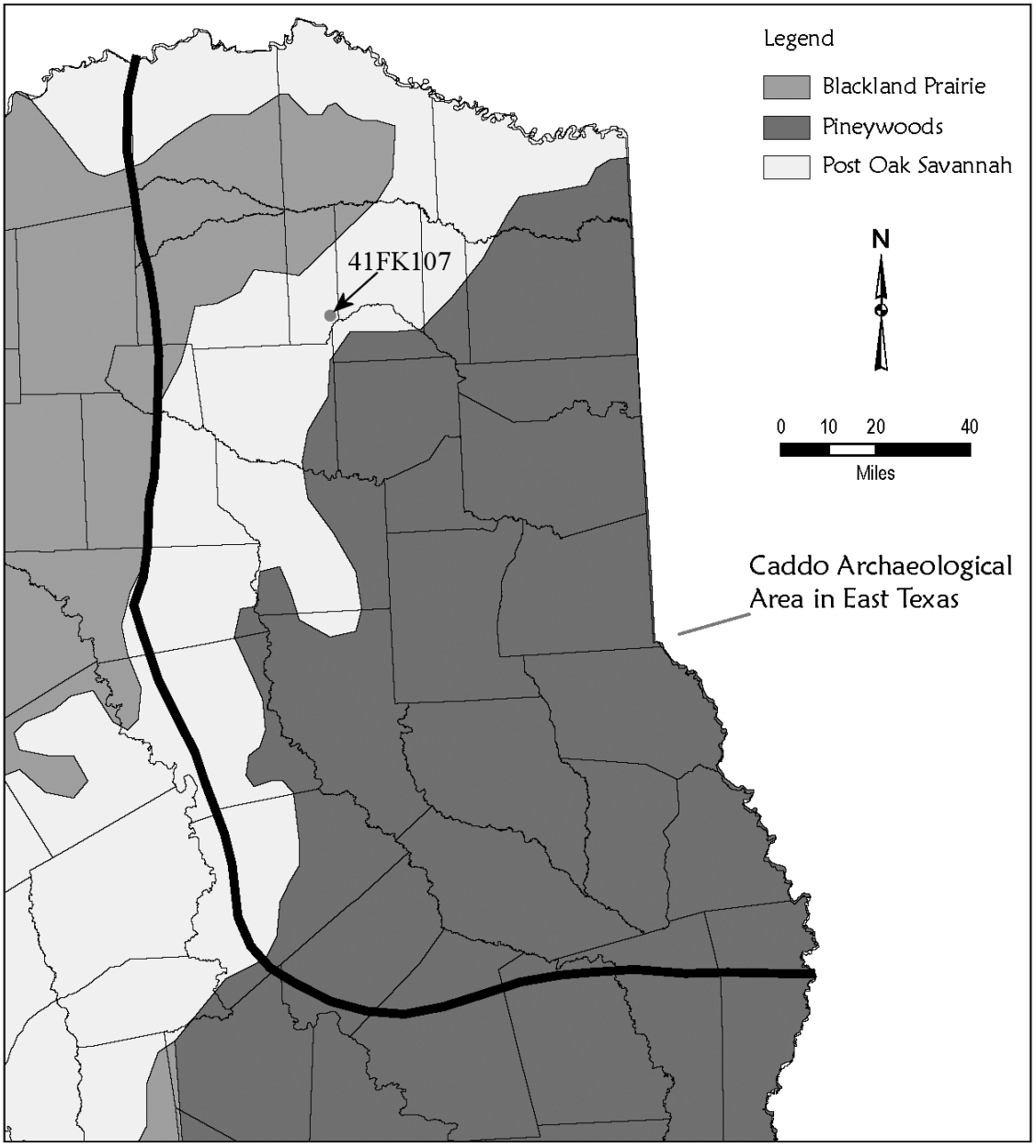

Figure 2. The setting of the New Hope site in the Post Oak Savannah of East Texas.

with small tall-grass prairies. The dominant plants of the overstory are post oak and blackjack oak and to a lesser extent winged elm and black hickory." The Pineywoods have medium-sized to tall broadleaf deciduous forests in more mesic habitats, and shortleaf and loblolly pines are common on upland fine sandy loam soils with adequate moisture. Smaller areas of tall grass prairie may be present in both communities throughout the region (e.g., Jordan 1981:Figure 4.1), particularly in drier sandy lands.

The predominant overstory trees in this general locale, prior to mid-19th century timbering and a general cessation of fire, would have been were red oak (*Quercus falcata*), post oak (*Q. stellata*), blackjack oak (*Q. marilandica*), and various species of hickory (*Carya* sp.), along with sweetgum (*Liquidambar styraciflua*). Pine trees probably only occurred in patches. The general composition of the forested landscape on both sides of the Big Cypress Creek would have been an upland woodland of oaks and hickories—with

more mesic patches of white oak (*Q. alba*) and red oak—with hardwood forests in the floodplain. The floodplain hardwood forests may have comprised willow oak (*Q. phellos*), water oak (*Q. nigra*), overcup oak (*Q. lyrata*), maple (*Acer* sp.), sweetgum, ash (*Fraxinus* sp.), elm (*Ulmus americana*), and sassafras (*Sassafras albidum*). There probably were some swampy or marshy, frequently inundated floodplain areas along Big Cypress Creek, and black gum (*Nyssa sylvatica*) or black tupelo would have been in those settings. Pine was not a primary constituent in the forest. The pine that did occur (probably shortleaf pine, *Pinus echninata*) would have grown on the drier soils in the forest, likely in patches mixed with blackjack oak and post oak (Bonnicksen 2000:229). The pine was also likely affected by the frequency and intensity of natural or human-created fires. There were patches of prairie, probably areas with poorly drained soils that would have had big (*Andropogon gerardii*) and little bluestem (*Schizachyrium scoparium*), switchgrass (*Panicum virgatum*), and Indiangrass (*Sorghastrum* sp.) (Marietta and Nixon 1984).

The forest composition prior to European settlement of the Big Cypress Creek valley, in the 1830s-1850s, appears to have been greatly influenced by the frequency and timing of Indian-set and lightning-ignited fires (see Bonnicksen 2000:331, 339). These fires created a mosaic of patches of trees with different tolerances to fire, shade, and moisture. The more-fire-tolerant shortleaf pine was found on drier upland soils, along with the more fire resistant post oak and blackjack oak also dominant on the drier soils in the forest.

Post oak and blackjack oaks were the important tree species in the area. The post oak and blackjack oaks would have been found on leached soils on poorly drained upland landforms with a low clay content, and there would have had a sparse floor understory cover.

Moister slopes and other upland landforms, along with elevated alluvial landforms (as at the New Hope site), apparently tended to have trees that were moderately tolerant of fire. This would have included loblolly (*Pinus taeda*), red oak, white oak, and hickory, along with maple, walnut (*Juglans nigra*), and other hardwoods. The white and red oak were nut-bearing trees. This forest mosaic tended to have a greater diversity of species in canopy than the post oak-blackjack oak or pine forests (Marietta and Nixon 1983). The distribution of mesic forests appears to have been comparable on both sides of Big Cypress Creek. Hickory, in particular, preferred moist slopes as well as river bottoms because they are more vulnerable to fires than the oaks and shortleaf pine.

Mid-19th century General Land Office field notes indicate that Big Cypress Creek had only a 20-28 foot wide channel in this general area, not much different than in modern times. The stream flowed all year-round. The channels of the smaller tributaries ranged from 6-10 feet in width, and many of these were probably spring-fed, while others only flowed part of the year (Thurmond 1990:16 and Figure 4).

Previous Investigations at the New Hope Site

The first notice that the New Hope site had a significant archaeological deposit came when Nelson and Perttula (2003:43-44) documented a large collection of prehistoric artifacts in a private collection. These artifacts indicated that the site had been used during Late Paleoindian, Late Archaic, Woodland, and probable Early Caddo times, with a substantial occupation that took place in the Early Caddo period (ca. A.D. 1000-1200); the other periods were marked by diagnostic projectile points.

The Early Caddo assemblage in this first documented collection included 630 sherds, and two effigy vessels with tab tails. Most of the decorated sherds had punctations, many with crescent-shaped fingernail punctations in free or random patterns. Other decorative elements represented in this collection included diagonal and cross-hatched incised lines, triangular and curvilinear incised zones filled with tool punctations, and diagonal and curvilinear engraved lines on carinated bowls and bottles.

In 2005, an investigation of an area being scraped by the landowner at the New Hope site recovered evidence of about 50% of a 8.8 m circular Caddo structure with a central hearth as well as outdoor activity area pits and post holes (Nelson and Perttula 2006:Figure 5). Charred hickory nutshells from the central hearth have a calibrated age range of A.D. 1280-1420 (2 sigma), with calibrated intercepts of A.D. 1310, A.D. 1360, and A.D. 1390. The ceramic sherds from this work have a Middle Caddo stylistic flavor, because red-slipped sherds are relatively common in the decorated sherd assemblage, there are engraved sherds with cross-hatched and hatched zones, as well as hatched ladders—common in Middle Caddo ceramic assemblages in much of East Texas—and punctated, incised, and brushed utility wares are relatively common (Nelson and Perttula 2006:32-33).

Together, these two previous investigations at the New Hope site recovered 816 sherds (604 plain and 212 decorated) from the prehistoric Caddo occupations there. The plain to decorated sherd ratio (P/DR) is 2.85. Utility wares with punctated and incised decorations dominate the assemblage, accounting for 75.9% of all the decorated sherds (Table 1), while fine wares only comprise 17.5% of the assemblage. Sherds from brushed vessels, which began to be made and decorated by Caddo potters after ca. A.D. 1200-1300 in the Big Cypress Creek basin, represent only 2.4% of the decorated sherds at the New Hope site. In the Big and Little Cypress Creek basin, pre-A.D. 1200 Caddo sites do not have brushed utility ware ceramics. Utility wares are dominated by punctated, incised, and punctated-incised elements and motifs, and various kinds of engraved fine wares. There appears to be an west to east trend in the manufacture and use of brushed utility wares in post-A.D. 1200 Caddo sites in the Big Cypress Creek basin, from less than 5% in the western part of the basin (at sites like New Hope) to as much as 75% in the eastern part of the basin.

Table 1. Decorated sherds from previous investigations at the New Hope site.

Decorative Method	No.	Percent
Utility Wares		
Punctated	120	56.6
Incised	41	19.3
Incised-Punctated	5	2.4
Brushed	5	2.4
Pinched	2	0.9
Appliqued	1	0.5
Lip Notched	1	0.5
Subtotal, utility wares	175	82.5
Fine Wares		
Engraved	31	14.6
Red-slipped	5	2.4
Ripley Engraved*	1	0.5
Subtotal, fine wares	37	17.5
Totals	212	100.0

*from Late Caddo Titus phase use of the New Hope site

Ceramic Assemblage

The most recently documented Caddo ceramic sherd assemblage documented from the New Hope site has 2045 sherds. Approximately 68% of the sherds are plain rim, body, and base sherds, while the remainder are decorated rim and body sherds (n=651) from utility ware and fine ware vessels (Table 2). The plain to decorated sherd ratio (P/DR) in this assemblage is 2.14, which suggests that it is primarily a product of a Middle Caddo occupation (see below). Utility ware sherds comprise 32% of the rim sherds and 28% of the body sherds, compared to fine wares, with 23% of the rim sherds and 4.5% of the body sherds. These proportions suggest that utility wares are equally decorated on the rim and body of vessels, while fine wares were more likely to have only been decorated on the vessel rim.

Table 2. Composition of newly documented ceramic assemblage from the New Hope site.

Decorative Method	Rim	Body	Base	N
Plain	43	1241	110	1394
Utility Ware, Summary	30	516	-	546
Appliqued	-	1	-	1
Pinched	-	2	-	2
Brushed	-	15	-	15
Incised-Punctated	3	24	-	27
Incised	19	101	-	120
Punctated	8	373	-	381
Fine Ware, Summary	22	83	-	105
Red-slipped	-	13	-	13
Engraved	22	69	-	91
Trailed	-	1	-	1
Totals	95	1840	110	2045

Most of the utility ware sherds are from vessels decorated with punctations or incised lines, apparently on both the rim and the vessel body. Among the fine wares, sherds from engraved vessels are best represented in the collection (see Table 2).

Plain Sherds and Technological Features of all Ceramic Wares

The number (n=43) and proportion (45%) of plain rims in the New Hope site ceramic collection indicates that plain vessels were an important part of the Caddo ceramic assemblage. Plain vessels include bowls, carinated bowls, bottles, and jars.

The plain vessels at the site are moderate in size, based on orifice diameters of 4.0 cm for bottle rims and orifice diameters that range from 10-20 cm for non-bottles (Table 3). The small sample of measurable rims indicates that there is little difference in the mean size of the plain, utility, and fine ware non-bottles, as the means range only from 14.1-15.0 cm, with the utility wares only about 5-6% larger on average than the plain wares and fine wares. The median rim orifice diameter is 14.0 cm.

Table 3. Rim orifice diameters.

Orifice diameter (cm)	Plain ware	Utility ware	Fine ware
Bottles			
4	18.2*	-	20.0
Other Vessel Forms			
10	9.1	-	-
11	9.1	-	-
12	9.1	33.3	20.0
13	-	-	10.0
14	18.2	-	30.0
15	18.2	16.7	-
16	-	33.3	-
18	9.1	-	-
19	-	16.7	20.0
20	9.1	-	-
Mean Orifice Diameter	14.3	15.0	14.1
Totals	11	6	10

*percentage

The vast majority of the rim and lip profiles of the New Hope site vessels are direct (vertical) rims and rounded lips; this is particularly the case among the plain wares and utility wares (Table 4). Folded lips—whether folded to the exterior or interior—are primarily a feature of engraved fine ware vessels (27.1%); folded lips are absent among utility wares and comprise only 4.7% of the plain wares (probably from plain carinated bowls). Flat lips are present in all three wares, but are most abundant among the fine wares (18.1%). Finally, a small proportion of everted vessel rims are present among all three wares, with the higher proportion present in the utility wares.

Table 4. Rim and lip profiles.

Rim and lip profiles	Plain ware	Utility ware	Fine ware
Direct-rounded	74.4*	71.4	54.5
Direct-rounded, ext. folded	4.7	-	18.2
Direct-rounded, int. folded	-	-	4.5
Direct-flat	9.3	7.1	13.6
Direct-flat, ext. folded	-	-	4.5
Everted-rounded	4.7	7.1	4.5
--Rounded	7.0	14.3	-
Totals	43	14	22

*percentage

The New Hope ceramic assemblage is dominated by sherds from vessels tempered with grog (crushed sherds or fired clay). Between 92.9-99.2% of the sherds in the three wares have grog temper, and it is the sole temper in 45.8-53.9% of the sherds (Table 5). Other important tempers include burned bone and hematite. Burned bone is present as a temper in 40-42.9% of the sherds, typically along with grog, while hematite was used as a temper in 5.2-9.9% of the plain wares and utility wares; none of the fine wares had hematite temper.

Table 5. Use of temper in the ceramic vessel sherds.

Temper and Paste	Plain ware	Utility ware	Fine ware
grog	45.8*	53.9	46.4
grog-sandy paste	4.5	2.6	7.1
grog-organics	1.0	-	-
grog-organics-sandy paste	-	-	3.6
grog-bone	35.2	36.5	28.6
grog-bone-sandy paste	0.6	1.7	7.1
grog-bone-organics	1.0	-	-
grog-hematite	6.1	3.5	-
grog-hematite-organics	0.3	-	-
grog-bone-hematite	2.6	0.9	-
bone	0.6	-	7.1
bone-sandy paste	0.3	-	-
bone-organics	1.0	-	-
bone-organics-sandy paste	0.3	-	-
bone-hematite	1.0	0.9	-
Summary, sherds with:			
grog temper	96.8	99.2	92.9
bone temper	42.5	40.0	42.9
hematite temper	9.9	5.2	-
organics	3.5	-	3.6
sandy paste	5.5	4.3	17.9
Totals	313	115	28

*=percentage

Fine wares tended to be made more often from a naturally sandy clay, as 17.9% of the fine ware sherds analyzed in detail have a sandy paste (see Table 5). Only 4.3-5.5% of the plain ware and utility ware sherds have a sandy paste. The vast majority of the sherds are from vessels with a silty to clayey paste, and the clays used for vessel manufacture likely came from sources within 1-7 km of the site, where clays could be readily procured.

Caddo vessels tended to be fired in a variety of different ways, presumably reflecting personal preferences in firing, the desired vessel color, the kind of clays that were used, and the functional and technological requirements of the kinds of vessel forms that were being manufactured at a specific site. Vessels were likely fired in an open fire, with the vessels either set atop the fire or nestled in the coals and ash; vessels would be left in the fire and ashes to cool down or they would have been pulled away from the fire and hot ashes to cool in the open air. The New Hope site Caddo ceramics were most commonly reduced fired (i.e., in a low oxygen firing condition) (Table 6), particularly the fine wares. Between 72.9-82.1% of the analyzed plain ware and fine ware sherds were fired in a reducing environment, compared to only 55.4% of the utility wares.

In the reduced firing employed by the Caddo potters at the site, near the end of the firing, the vessels were apparently pulled or moved away from the fire and allowed to cool in the open air, leaving a thin oxidized zone at either one or both vessel surfaces and core.

Vessels fired and cooled in the open air (i.e., oxidized) were relatively common among the three wares, ranging from 14.3-19.7% (see Table 6). Conversely, sherds from vessels that were incompletely (and probably poorly fired) oxidized during firing were most common among the utility wares (15.1%) and plain wares (7.8%), while only 3.6% of the fine ware sherds were fired in this manner. Fine wares were likely fired at higher temperatures than the other wares, and for a longer duration, producing strong and durable vessels used for the serving of foods and liquids as well as for display. The plain wares and utility wares had more utilitarian uses and they did not apparently require the highest or lengthiest firing temperatures.

Table 6. Firing conditions in the ceramic vessel sherds.

Firing conditions	Plain ware	Utility ware	Fine ware
A (oxidized)	15.2*	19.7	14.3
B (reducing)	13.1	3.6	10.7
C	3.2	6.2	-
D (incompletely	0.4	0.9	-
E oxidized)	4.2	8.0	3.6
F (firing in reducing	28.7	33.0	39.3
G environment, and	27.2	14.3	21.4
H cooled in open air)	3.9	4.5	10.7
I	-	0.9	-
J (sooted, smudged, or	0.3	0.9	-
K (refired	3.5	7.1	-
L	0.3	0.9	-
Totals	283	112	28

*percentage

Another indication of differences in firing conditions between the plain wares-utility wares versus the fine wares was in the proportion of sherds that were from vessels sooted, smudged, or refired; these firing conditions suggest that vessel firing in some cases was not well controlled or carefully done. None of the fine ware sherds were from such vessels, compared to 4.1% of the plain wares and 9.8% of the utility wares (see Table 6).

The Caddo sherds are from vessels with moderately thick vessel walls (Table 7). Fine ware vessel sherds are consistently from vessels made thinner than decorated utility ware (20-30% or about 1-2 standard deviations) or plain ware (4-14% difference, less than 1 to 1 standard deviations) sherds, particularly when measured along the rim. These variations in vessel wall thickness are likely related to functional and technological decisions made by Caddo potters in how these different wares were intended to be used in local encampments or households. The less substantial vessel walls in some of the utility wares would be well suited to the cooking and heating of foods and liquids and, because heat would have been conducted

efficiently while heating rapidly, would have contributed to their ability to withstand heat-related stresses; also, the much thicker utility ware vessels (with rim thicknesses greater than 9 mm and body wall thicknesses greater than 10-11 mm) would have created stronger and more stable vessels, and would have been well suited for use as long-term storage containers (Rice 1987:227). Fine wares and much of the plain ware were probably intended for use in the serving of foods and liquids, and thinner and less porous vessel walls would have helped to maintain the temperature of served food and liquids; thinner and lighter vessels would have also contributed to the ease with which serving vessels could be handled, used, and transported.

Table 7. Thickness of rim, body, and base sherds.

Ware	Rim (mm)	Body (mm)	Base (mm)
Fine ware	5.89 ± 0.67	6.50 ± 0.87	-
Utility ware	7.08± 1.00	8.70 ± 1.07	-
Plain ware	6.11 ± 1.10	7.43 ± 0.99	12.1 ± 1.63

Another factor that would have influenced vessel body wall thickness would have been the sequence in which a vessel was constructed (Krause 2007:35), of which there are a wide variety of choices available to potters (cf. van der Leeuw 2002:243-256). Vessels constructed from the bottom up, as most Caddo vessels likely were, would tend to have thinner walls moving up the vessel body towards the rim, with the lower portion of the vessel—especially the base, likely made separately, and thus available to serve as a support during later vessel construction—usually significantly thicker than the upper portions of the vessel.

Decorated Sherds

The utility wares in this collection from the New Hope site include sherds from appliqued, brushed, incised, incised-punctated, pinched, and punctated vessels. The vessels with punctated and incised decorations are particularly abundant in the assemblage.

Appliqued

The one appliqued sherd is from the body of a jar. It has a single straight appliqued fillet, a fillet that probably divided the body into different panels, as with Pease Brushed-Incised. There is no evidence on this small sherd as to whether the appliqued panel was decorated or left plain.

Brushed

The brushed body sherds are from at least five different vessels, based on temper and firing conditions. The majority of the brushed sherds (87%) have parallel brushing marks; the orientation of the brushing on these sherds is not known with certainty. One other brushed sherd has vertical brushing marks on the body of a cooking jar, while the last brushed sherd has overlapping brushing marks.

Incised

The incised sherds appear to be from utility ware jars. These 120 sherds comprise 63% of the utility ware rims and about 20% of the utility ware body sherds (see Table 2), indicating that incised decorated vessels are an important part of the New Hope site ceramic assemblage (Table 8). The rim sherds are dominated by diagonal and diagonal opposed incised lines (accounting for 74% of the incised rims) that would have run around the vessel rim, as well as rims with cross-hatched, horizontal, and vertical incised lines (Figure 3a-h). Utility ware typological possibilities for these rim sherds include Canton Incised, Davis Incised, and Dunkin Incised, as well as Kiam Incised (see Suhm and Jelks 1962). These are types that are found in Early to Middle Caddo (ca. A.D. 900-1300) contexts in East Texas.

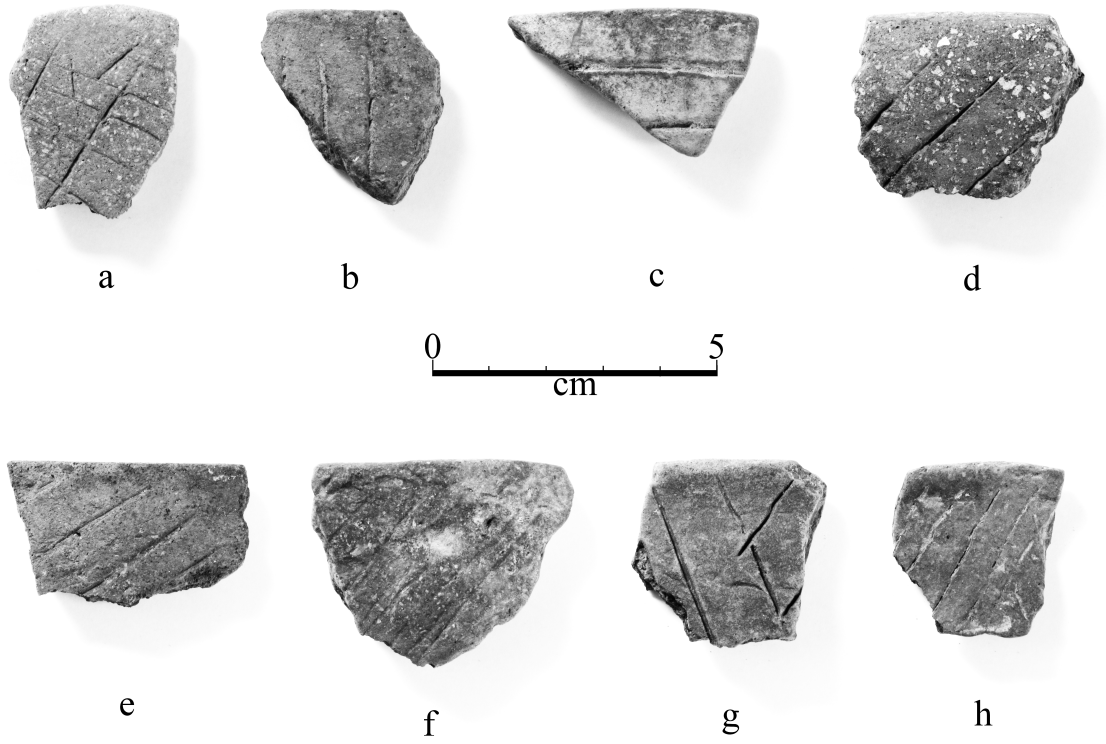

Figure 3. Incised rims from the New Hope site ceramic assemblage: a, diagonal opposed panels; b, vertical incised; c, horizontal incised; d-f, diagonal; g-h, diagonal opposed incised lines.

Table 8. Incised decorative elements.

Decorative element	Rim	Body	N
Cross-hatched lines	2	5	7
Curvilinear lines	-	1	1
Diagonal lines	10	1	11
Diagonal-horizontal lines	-	1	1
Diagonal opposed lines	4	12	16
Horizontal lines	2	-	2
Parallel lines, none overhanging	-	51	51
Triangular element	-	1	1
Vertical lines	1	1	2
Single straight line	-	28	28
Totals	19	101	120

Incised body sherds feature simple geometric elements, particularly diagonal opposed and straight lines (Figure 4a, d), as well as cross-hatched (Figure 4c) and parallel lines. Only 1% of the incised body sherds have curvilinear incised lines (see Table 8).

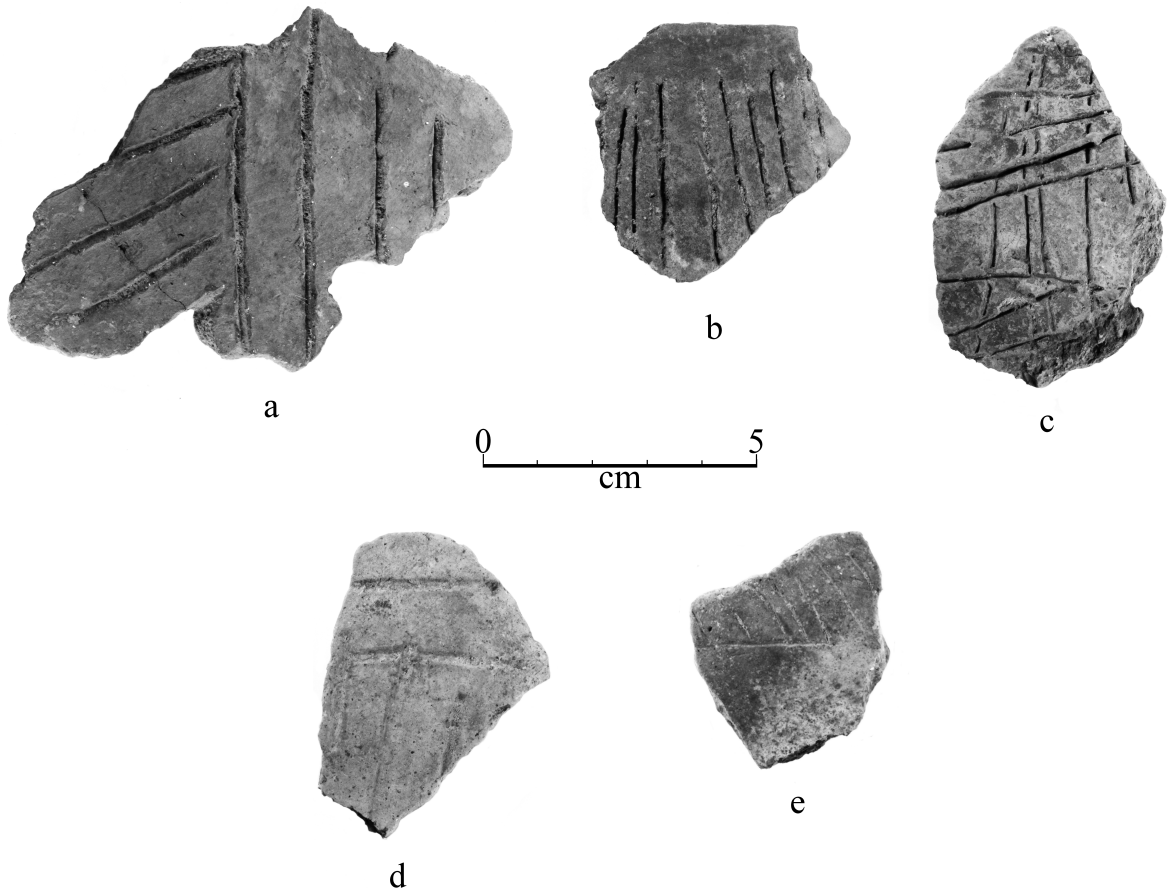

Figure 4. Incised body sherds: a, diagonal-opposed, with suspension hole; b, vertical incised; c, cross-hatched; d, diagonal opposed; e, diagonal and horizontal lines.

Incised-Punctated

Sherds from incised-punctated utility ware vessels represent approximately 5% of the utility wares in the New Hope site collection, including 13% of the rim sherds (see Table 2). The punctations are either tool (n=21), fingernail (n=3), circular (n=2), or tool and circular (n=1) elements.

The rim sherds are split evenly between those with curvilinear incised elements and tool or circular punctate-filled curvilinear incised zones (Table 9 and Figure 5a-b) and those with either horizontal or diagonal incised lines and punctations (Figure 5c). The latter rim has diagonal incised lines and a triangular incised zone filled with fingernail punctations, while the horizontal incised rim has incised lines above a zone of tool punctations (Kiam Incised).

The incised-punctated body sherds have geometric incised elements, primarily diagonal, horizontal, and parallel lines, and several different punctated elements. These include punctate-filled triangles (see Figure 5e), others with at least one row of punctates above diagonal or diagonal-horizontal lines (see Figure 5d, f), or zones of punctations adjacent to parallel or straight incised lines; the punctated zones are probably incised triangles. Canton Incised and Dunkin Incised vessels have decorations consistent with what we have documented in the incised-punctated sherds from the New Hope site.

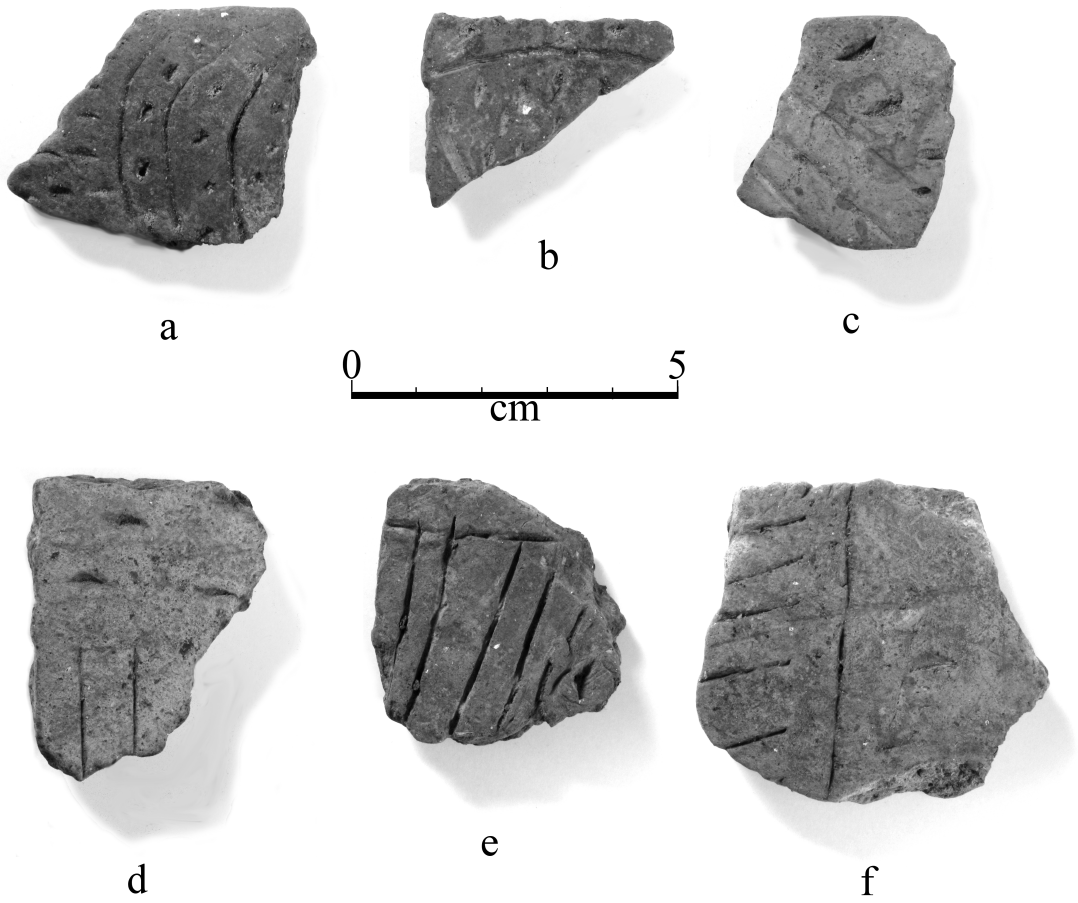

Figure 5. Incised-punctated sherds: a, c, rim sherds; b, d-f, body sherds.

Table 9. Incised-punctated decorative elements.

Decorative element	Rim	Body	N
Curvilinear incised lines with zones of circular and tool punctates	1	-	1
Curvilinear incised lines with zones of tool punctates	1	-	1
Diagonal incised lines and fingernail punctated zone	1	1	2
Diagonal incised line above circular punctated row	-	1	1
Diagonal incised lines adjacent to tool punctated zone	-	2	2
Horizontal incised lines above tool punctated zone	1	-	1
Horizontal-diagonal incised lines and adjacent tool punctated zone	-	2	2
Parallel incised lines adjacent to row of small circular punctates	-	1	1

Table 9., cont.

Decorative element	Rim	Body	N
Parallel incised lines adjacent to tool punctated zone	-	6	6
Straight incised line between fingernail punctates	-	1	1
Straight incised line adjacent to tool punctated zone	-	5	5
Straight incised line adjacent to tool punctated row	-	2	2
Straight incised line between tool punctated rows	-	2	2
Totals	4	23	27

Pinched

Both pinched body sherds have parallel pinched ridges that cover the vessel surface. These sherds may be from Hollyknowe Ridge Pinched vessels, where the decoration consists of "vertical ridges formed by fingernail pinching" (Webb and McKinney 1975:84).

Punctated

The sherds with punctated decorations account for 26.7% of the utility ware rims and 73% of the utility ware body sherds (see Table 2). The disproportionate number of body sherds to rim sherds suggests that punctated decorations were most commonly placed on the body of cooking and storage jars. The punctated rims have at least one row of either fingernail or tool punctations on them, beginning under the lip and extending to the rim-body juncture (Figure 6a-b).

The sherds with punctations in the New Hope site ceramic assemblage include those with circular punctations (3%) (Figure 7b-d) , fingernail punctations of various sorts (52%), and tool punctations (39%) (Table 10). One of the latter body sherds has both horizontal and diagonal tool punctated rows (Figure 7a).

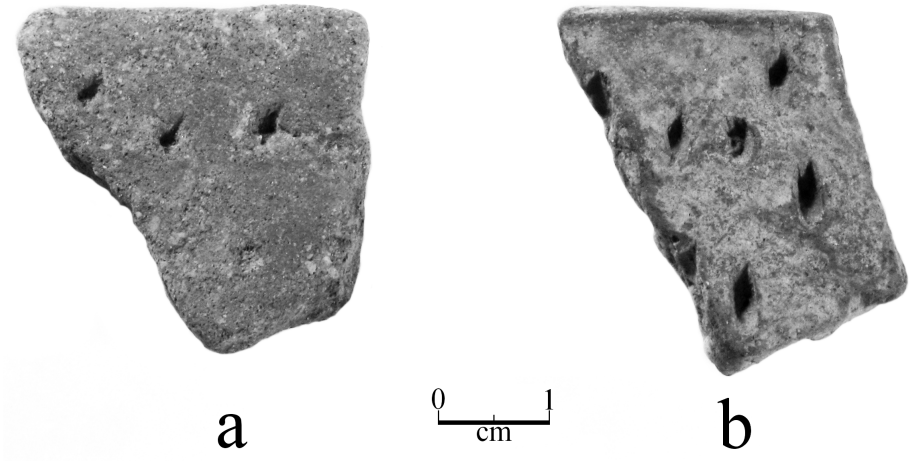

Figure 6. Punctated rim sherds.

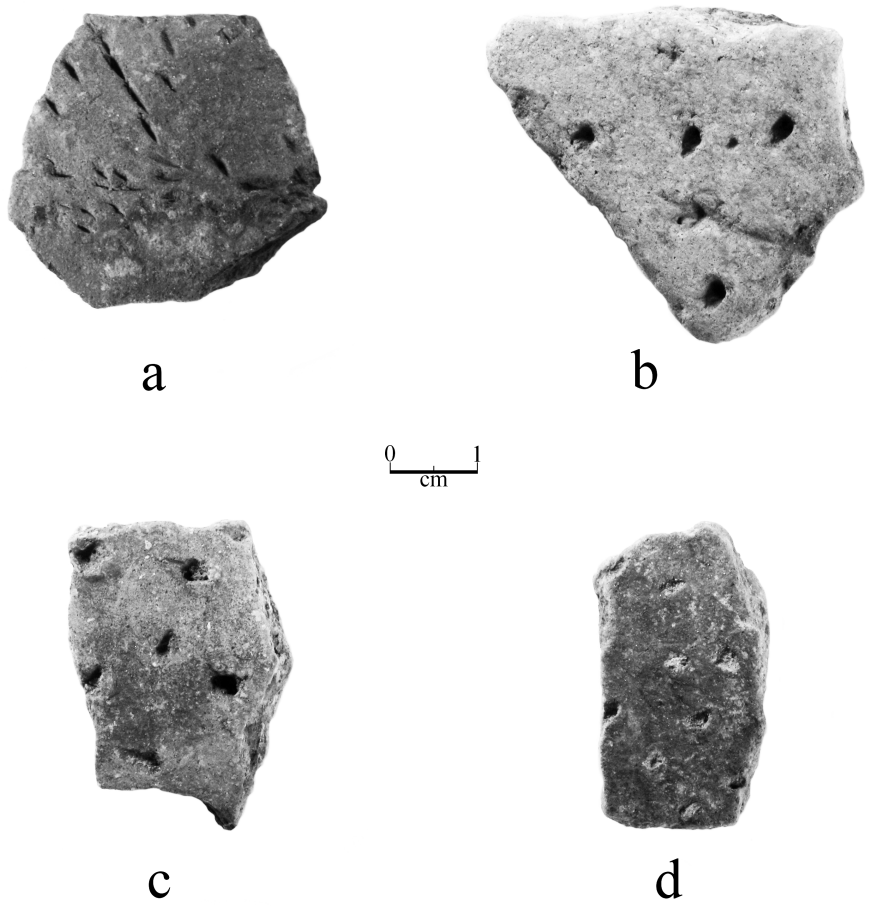

Figure 7. Punctated body sherds: a, horizontal and diagonal tool punctated rows; b-d, circular punctated.

Table 10. Punctated decorative elements.

Decorative element	Rim	Body	N
circular punctated	-	12	12
crescent-shaped fingernail punctations	-	40	40
fingernail punctated rows	2	-	2
fingernail punctated, rows and free	-	156	156
horizontal-diagonal tool punctated rows	-	1	1
tool punctated rows	4	-	4
tool punctated row under lip	2	-	2
tool punctated, rows and free	-	143	143
Single punctation, tool/fingernail	-	21	21
Totals	8	373	381

Of the fingernail punctated body sherds, the most distinctive have a crescent-shaped punctation arranged in rows, not bounded by incised lines (Figure 8a-e). These sherds are classified as Weches Fingernail Impressed, *var. Alto* (Stokes and Woodring 1981:Figures 22m and 23b-c); they represent 10.5% of the punctated sherds from the site. It may be of temporal significance that there are no Weches Fingernail Impressed, *var. Weches* sherds in the New Hope site collection (see Stokes and Woodring 1981:181).

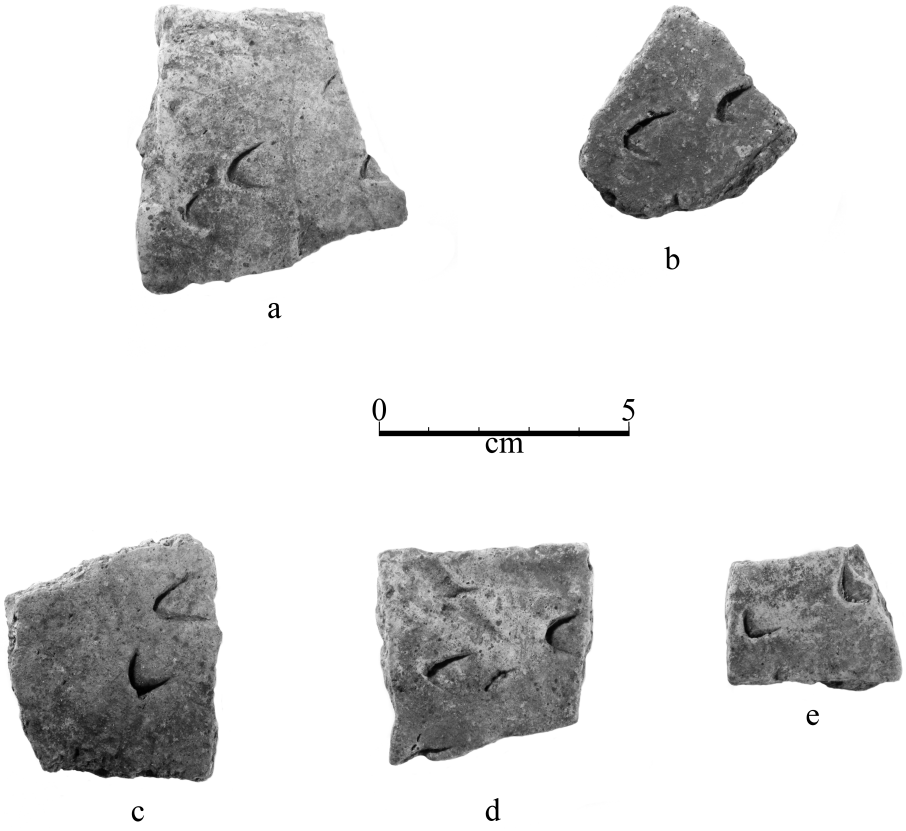

Figure 8. Crescent-shaped punctated body sherds from Weches Fingernail Impressed, *var. Alto* vessels.

The remainder of the punctated sherds include both simple fingernail and tool elements. These have either been arranged in one or more rows, or are freely or randomly distributed across the vessel body (Figures 9a-f and 10a-h). These are probably from Dunkin Incised and Kiam Incised vessels.

The fine wares in the New Hope site ceramic assemblage are vessels with engraved, red-slipped, and trailed decorations. Engraved sherds account for 87% of the fine wares, followed by red-slipped (12%), and trailed (1%) (see Table 2). The fine ware rims have only engraved designs.

Engraved

The engraved sherds from the New Hope site collection have predominantly relatively simple geometric decorations, including diagonal, diagonal opposed, horizontal, parallel, vertical, and triangular elements (Table 11). These decorations occur on bowls and carinated bowls, as well as at least one compound bowl. About 16% of the sherds have curvilinear lines and concentric elements, and most of the former decorations tend to be on bottles, while concentric semi-circles occur as decorations along the rim panel of carinated bowls.

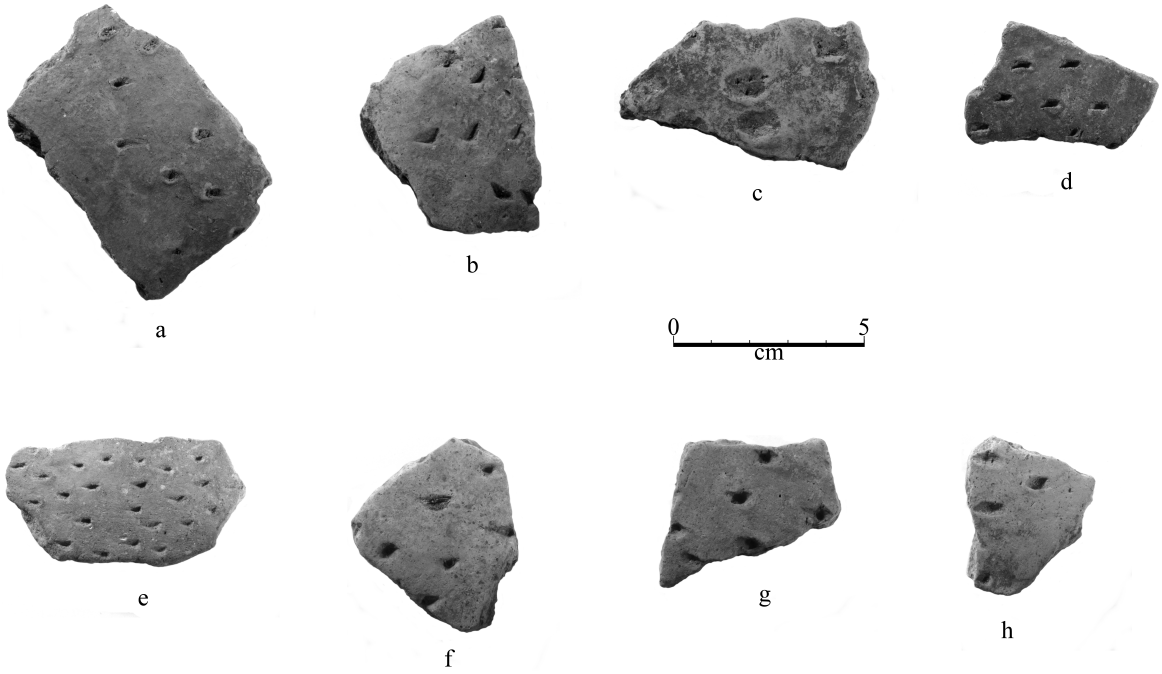

Figure 9. Fingernail punctated body sherds.

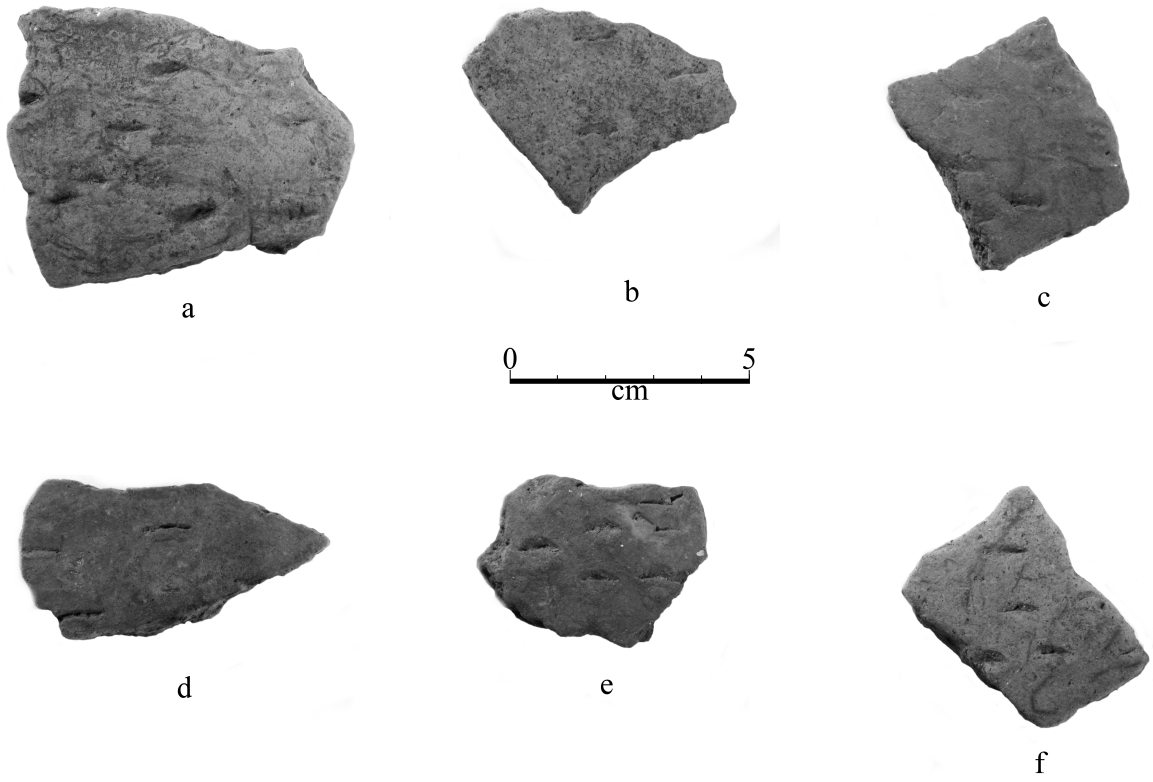

Figure 10. Tool punctated body sherds.

Table 11. Engraved decorative elements.

Decorative element	Rim	Body	N
Concentric semi-circles	1	1	2
Cross-hatched zone	-	1	1
Curvilinear lines	-	8	8
Curvilinear, single line	-	4	4
Diagonal engraved lines	9	5	14
Diagonal and cross-hatched lines	-	1	1
Diagonal opposed lines	2	5	7
Horizontal engraved lines, bottles	3	3	6
Horizontal engraved lines, bowls	4	-	4
Horizontal engraved line under lip	1	-	1
Horizontal and curvilinear hatched lines	1	-	1
Horizontal, diagonal opposed, and excised triangle*	1	-	1
Interior straight engraved line	-	3	3
Parallel engraved lines	-	24	24
Straight engraved line	-	12	12
Triangular with hatched lines	-	1	1
Vertical, diagonal opposed, and excised triangle*	-	1	1
Totals	22	69	91

*Holly Fine Engraved

Rim sherds are from vessels primarily with diagonal and diagonal opposed engraved lines (Figure 11a-b, f-g), horizontal engraved lines on bottles (Figure 11c-d) and bowls (Figure 11e), or are various combinations of horizontal engraved lines and other elements. One rim is likely from a Holly Fine Engraved vessel (Figure 11h) in that it has fine lines of sets of horizontal and diagonal engraved lines on either side of an excised triangle element (see Suhm and Jelks 1962:Plate 39d). Another distinctive rim has concentric semi-circles (see Table 11).

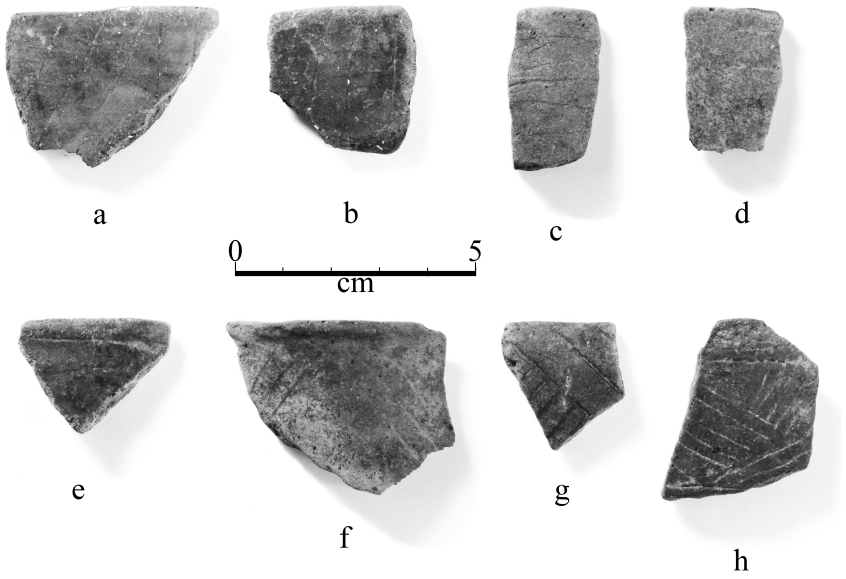

Figure 11. Engraved rim sherds: a-b, diagonal engraved; c-d, horizontal engraved bottle rims; e, horizontal engraved; f, diagonal opposed engraved; g, diagonal opposed engraved; h, cf. Holly Fine Engraved.

Engraved body sherds follow the same pattern as the rims, in that the decorative motifs and elements are primarily simple geometric designs (Figure 12d-e), with a few curvilinear engraved sherds from bottles (Figure 12a) as well as concentric semi-circles (Figure 12c; see Table 11). One Holly Fine Engraved body sherd has horizontal and diagonal opposed engraved lines on either side of an excised triangle (Figure 12b).

Only three of the engraved sherds (3%) in the ceramic assemblage have a pigment rubbed in the engraved lines. This includes two diagonal engraved rims with a red pigment in the lines (see Figure 11a-b), as well as a Holly Fine Engraved rim with red pigment rubbed in the engraved lines (see Figure 11h). One sherd with a cross-hatched engraved zone has also been red-slipped on its interior surface; this is likely from a Late Caddo Titus phase vessel.

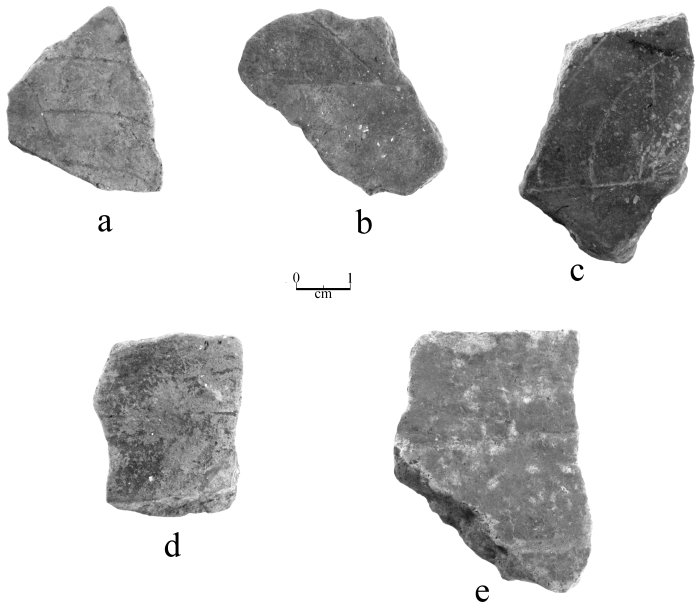

Figure 12. Engraved body sherds: a, curvilinear engraved; b, Holly Fine Engraved; c, concentric semi-circles; d, diagonal opposed engraved; e, parallel engraved lines, compound bowl.

Red-slipped

The red-slipped sherds are from carinated bowls (n=2) or bottles (n=11). The carinated bowls have a red slip on both interior and exterior vessel surfaces, while the bottles have a red-slip only on the exterior surface. The sherds are from grog-tempered vessels, suggesting they may be classified as Sanders Plain (see Brown 1996).

Trailed

The one grog-tempered sherd is from a Keno Trailed vessel that has a series of U-shaped curvilinear trailed lines (Figure 13) that apparently covered the body of a bowl (see Suhm and Jelks 1962:Plate 44f; Webb 1959:Figure 111c). Keno Trailed is a Late Caddo to Historic Caddo pottery type, and is not commonly found in East Texas Caddo archaeological sites, suggesting that the sherd came from a vessel traded into the Big Cypress Creek basin from another Caddo group in the Red River basin to the east.

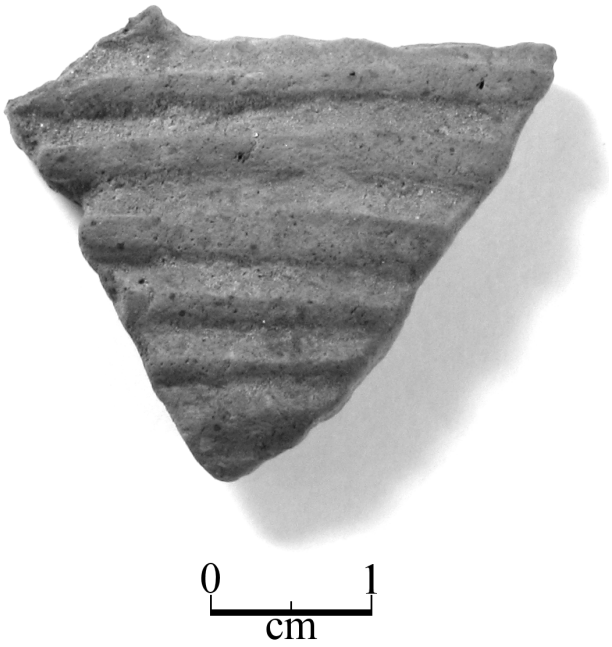

Figure 13. Keno Trailed body sherd from the New Hope site.

Cultural and Temporal Affiliation of the Ceramic Assemblage

Based on the stylistic motifs and elements identified in this ceramic assemblage documented from the New Hope site, along with the previous analyses of ceramics from the site (Nelson and Perttula 2003, 2006), it appears that the site was primarily occupied by Caddo Indian peoples between ca. A.D. 900-1400. This occupation probably took place on at least two different occasions during this broad temporal interval, rather than as a continuous occupation lasting several centuries. There also is very limited evidence for a Late Caddo occupation possibly post-dating ca. A.D. 1600, based upon the recovery of Ripley Engraved and Keno Trailed sherds in the various collections.

Both Early Caddo (ca. A.D. 900-1200) and Middle Caddo (ca. A.D. 1200-1400) occupations at the site were residential in nature, based on the range of plain (n=2210), utility (n=721), and fine wares (n=142) in the ceramic assemblages (Table 12), as well as a large family cemetery (likely of Early Caddo age) and the excavation of a Middle Caddo circular house and associated extramural features (see Nelson and Perttula 2003, 2006). Denoting the Early Caddo ceramics are engraved fine wares from the types Hickory Engraved and Holly Fine Engraved, as well as incised, punctated, and incised-punctated sherds from Davis Incised, Dunkin Incised, Kiam Incised, and Weches Fingernail Impressed. The very high percentage of punctated sherds in the assemblage—especially the proportion of fingernail punctated sherds—is also consistent with much of the ceramic assemblage dating to the Early Caddo period.

Table 12. Decorated sherds from all investigations at the New Hope site.

Decorative Method	No.	Percent
Utility Wares		
Punctated	501	58.1
Incised	161	17.5
Incised-Punctated	32	3.7
Brushed	20	2.3
Pinched	4	0.5
Appliqued	2	0.2
Lip Notched	1	0.1
Subtotal, utility wares	721	83.5
Fine Wares		
Engraved	22	14.2
Red-slipped	18	2.1
Ripley Engraved*	1	0.1
Trailed*	1	0.1
Subtotal, fine wares	142	16.5
Totals	863	100.0

*from Late Caddo Titus phase use of the New Hope site

More indicative of the Middle Caddo period occupation are the small amounts of brushed and red-slipped sherds, sherds from Canton Incised vessels, and distinctive engraved sherds with concentric semi-circles and sherds with hatched zones and ladders (see Nelson and Perttula 2006:33). These kinds of engraved sherds

were particularly notable in the archaeological deposits excavated to expose the circular house at the New Hope site; the one radiocarbon date from the circular house is cal A.D. 1280-1420 (2 sigma).

Ear Spool

There is a single sherd from a non-flanged ceramic ear spool among the ceramic artifacts. The piece has roughly straight sides and flattened ends, and is grog-tempered. It is 4.7 mm thick and 18.8 mm in length. A very similar ceramic ear spool sherd was documented from the Hudnall-Pirtle site (41RK4), an Early Caddo civic-ceremonial center on the Sabine River (Bruseth and Perttula 2006:Figure 29f).

Burned Clay and Daub

There are 10 pieces of burned clay and daub in this collection from the New Hope site: three daub (with stick impressions) and seven pieces of burned clay. The low amount of burned clay and daub suggests that no grass-thatched and clay-lined Caddo houses had been burned at the site, thus preserving burned examples of the clay lining. The few pieces at the site probably represent the incidental burning of earth and clay from the use of outdoor fires or earth ovens.

SUMMARY AND CONCLUSIONS

The New Hope site is a multiple component prehistoric site in the Big Cypress Creek valley. It is regularly submerged by the waters of Lake Bob Sandlin, but during periods of low water and wave action, artifacts have been exposed along the shoreline at the site. Several collections of prehistoric lithic and ceramic artifacts have been obtained over the last 20 years, and we have documented three such collections from the site (Nelson and Perttula 2003, 2006), including the large ceramic assemblage documented in this article. In addition to the principal occupations that took place between ca. A.D. 900-1400 at the site, the recovery of a number of dart points from the site indicate it was used by hunting-gathering foragers in Late Paleoindian, Late Archaic, and Woodland periods.

The ca. A.D. 900-1400 ceramic assemblage from the New Hope site has grog and grog-bone-tempered sherds from moderately thick plain wares, utility wares, and fine wares. The sherds are from vessels that were fired predominantly in a reducing environment, and many of the vessels were apparently pulled from the fire and allowed to cool in the open air, probably just outside the open firing pit. This left these vessels with a thin oxidized lens (yellowish-brown or reddish-brown in color) on either one or both vessel surfaces. Other sherds came from reduced fired vessels with dark grayish-brown to black surface colors.

The proportion of plain rims in the assemblage indicate that a significant number of the vessels made and used at the New Hope were plain ware bottles, jars, and bowls. Among the decorated vessels, more than 80% of the sherds are from utility wares decorated with punctated (fingernail and tool), incised, and incised-punctated elements; the punctated sherds dominate the collection, with 58% of all the decorated sherds having punctated designs, along with sherds from incised vessels (see Table 12). The fine wares are not well represented in the New Hope ceramic collections, but include sherds from a variety of engraved wares as well as a low percentage of red-slipped sherds.

The decorated sherds in the New Hope site ceramic assemblage indicates that the main Caddo occupations took place between ca. A.D. 900-1400, with the earliest component dating to the Early Caddo period, and the latter component dating to sometime in the Middle Caddo period. More detailed investigations, including controlled surface collections, intensive shovel testing, and selected hand-excavation areas, are warranted at the site to better define and discriminate the spatial extent of each component, as well as to better isolate the character of the ceramics from each component, and to obtain absolute dates from each.

ACKNOWLEDGEMENTS

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APPENDIX 1, CHIPPED STONE TOOLS FROM THE NEW HOPE SITE (41FK107)

A small sample of chipped and ground stone tools are in the newly documented collections from the New Hope site. Most are dart points and bifacial fragments that are the product of the Archaic and Woodland period use of the site, but there are also flake tools, an arrow point, and an ochre pigment stone.

Dart Points

There are several different types of dart points represented in the documented New Hope site collection. This includes probable Delhi (n=1), Bulverde (n=3), Kent (n=1), Godley (n=1), and Gary, *var. Camden* (n=3) points (Figure 14a-h). The Delhi and Bulverde points are indicative of a Late Archaic occupation at the site,while the Kent (at least in East Texas), Godley, and Gary points are the product of a Woodland period use, probably one that dated after ca. A.D. 200, based on the identification of the late Gary, *var. Camden* style (see Schambach 1982).

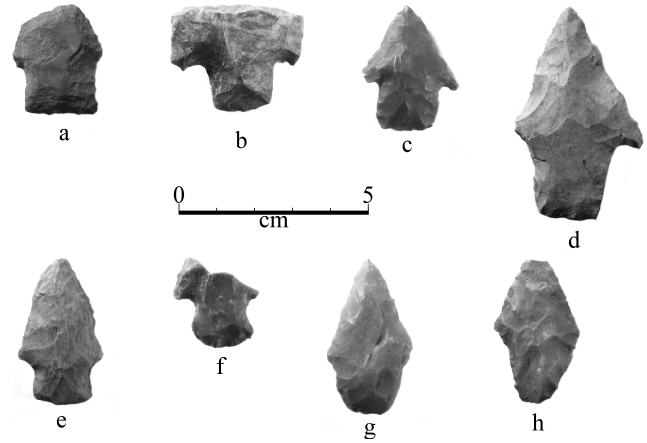

Figure 14. Dart points from the New Hope site: a, c-d, Bulverde; b, Delhi; e, Kent; f, Godley; g-h, Gary, *var. Camden*.

Specific details regarding the dart points are provided in Table 13. The Bulverde points are made from chert, have wedge-shaped chipped stem bases, and they are considerably resharpened along the blades (see Figure 14a, c-d). The Delhi point has been broken laterally across the blade and there is evidence of an impact fracture as well, it has small downward-pointing barbs, and a wedge-shaped chipped stem base (see Figure 14b).

Table 13. Dart points from the New Hope site (41FK107).

Type	Raw Material	Flaking Resharpened	L (mm)	W (mm)	Th (mm)	SW (mm)	Figure
Bulverde	brown chert	unifacial+	26.9	21.8	5.6	16.5	14a
Bulverde	brown chert	bifacial+	30.7	23.9	8.9	13.7	14c
Bulverdel	ight gray chert	bifacial+	52.0	31.0	10.3	20.0	14d
Delhi	quartzite	bifacial	25.2+	32.1	9.7	15.6	14b
Gary	quartzite	bifacial+	37.1+	26.6	6.6	14.0	-
Gary	grayish-brown chert	bifacial+	38.5	20.9	6.6	15.4	14g
Gary	brown chert	bifacial+	35.0+	21.0	6.5	16.1	14h
Godley	petrified wood	bifacial	22.2+	21.0+	6.7	11.9	14f
Kent	quartzite	bifacial+	36.0	20.5	6.8	13.2	14e

+=present; L=length; W=width; Th=thickness; SW=stem width

The Gary points have contracting stems and resharpened blades (see Figure 14g-h), and are made from both quartzite and chert raw materials. They are relatively thin (6.5-6.6 mm) and narrow (14.0-16.1 mm) at the stem, which is characteristic of the latest variety of Gary dart point, *var. Camden* (see Schambach 1982:Table 7-4). The Godley point is made from a local brown petrified wood, and has a lateral fracture across the blade (see Figure 14f). The one Kent dart point has a rectangular stem with a rounded base, as well as a resharpened blade (see Figure 14e). It is made from a local quartzite.

Bifaces and Biface Preforms

There are six bifaces and biface fragments in this documented New Hope site collection. One of these is a bifacial knive fragment of a gray chert; it is 28.9 mm wide and 6.9 mm thick. Three others are thick bifaces shaped by large percussion flakes (Figure 15a-b), and do not have any edge shaping or pressure flaking; two of the three have cortex on one face, and one has a knot of raw material that could not be removed during the flaking (Figure 15b). The thick bifaces were made from a heat-treated quartzite (n=2) and a brown chert (n=1). Dimensions of the thick bifaces range from 40.0-57.8 mm in length; 24.8-30.0 mm in width; and 10.8-21.9 mm in thickness.

The thin biface preforms are ovoid-shaped, with no cortical remnants. They have been shaped by a combination of percussion and pressure flaking around the lateral edges of the preforms (Figure 15c-d). Both are made from a local quartzite. The thin bifaces range from 10.1-10.2 mm in thickness, 37.2-46.8 mm in length, and 33.0-38.6 mm in width.

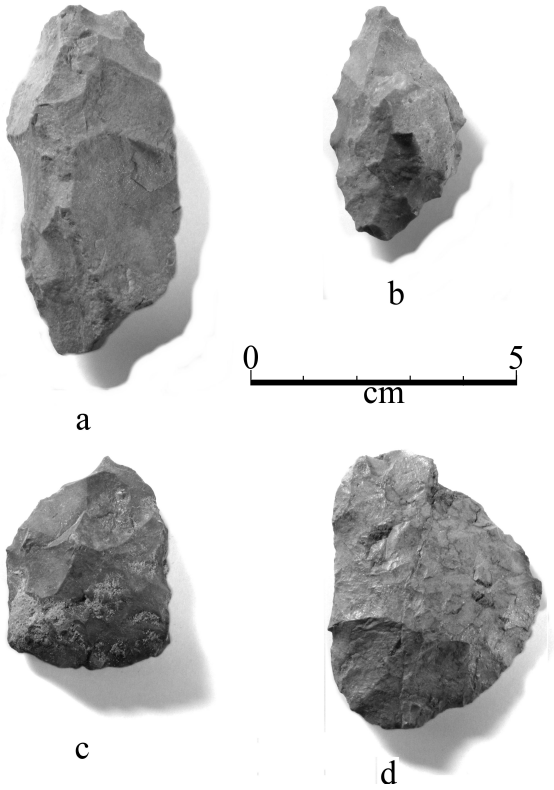

Figure 15. Bifaces from the New Hope site (41FK107): a-b, thick bifaces; c-d, ovoid biface preforms.

Arrow Point

The single Perdiz arrow point in the collection has a contracting stem and rounded base, a unifacially worked blade, along with serrated blades and small downward-pointing barbs (Figure 16). The point is made from a non-heat-treated local quartzite. The Perdiz point is likely associated with the post-A.D. 1200 use of the New Hope site (cf. Turner et al. 2011:206). The arrow point is 20.0 mm in length, 10.8 mm in width, and 2.5 mm in thickness; its stem width is 5.6 mm.

Figure 16. Probable Perdiz arrow point from the New Hope site (41FK107).

Scrapers and Flake Tools

The collection contains three distal end scrapers (Figure 17a), two of which also have lateral retouch/use-wear (Figure 17b-c). These tools would have been used for scraping hide, as well as cutting and shredding wood, bone, and leather. The tools are manufactured from petrified wood (Figure 17a), grayish-brown chert (Figure 17b), and brown chert (Figure 17c). All three tools are on cortical flakes.

Use-wear length of the scraper edges ranges from 19.0-25.2 mm, while the use-worn/retouched edges have use-wear lengths of 19.0 mm and 26.9 mm. The flakes themselves range in length from 27.9-39.3 mm, with widths ranging from 26.0-33.1 mm; flake thicknesses range from 5.7-8.6 mm.

Pigment Stone

One pebble-sized piece of ochre has been used as a pigment stone as there are five grooves cut across the stone, presumably to extract pigment. The pigment stone is 34.2 mm in length, 20.0 mm in width, and 9.6 mm in thickness.

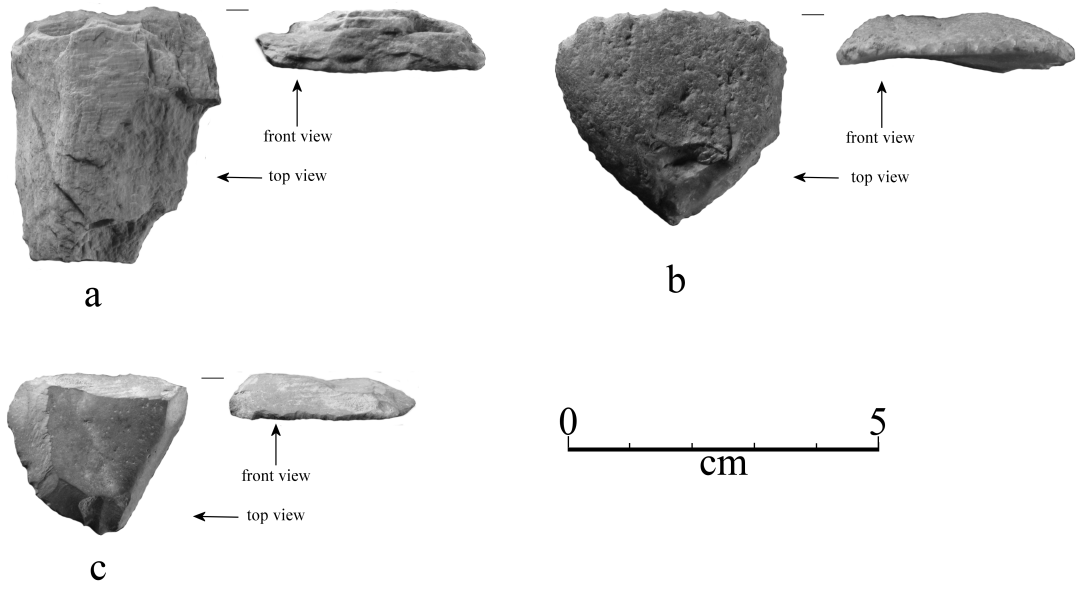

Figure 17. Scrapers and flake tools: a, end scraper; b-c, end scraper and lateral use-wear/retouch tools.

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The Wa'akas Site (41CP490) at Lake Bob Sandlin, Camp County, Texas

Timothy K. Perttula and Bo Nelson

INTRODUCTION

The Wa'akas site (meaning Cow in the Caddo language) is located on a small toe slope (330 ft. amsl) overlooking a small and unnamed tributary to Big Cypress Creek. The channel of Big Cypress Creek lies about 1 km to the north. The toe slope landform is normally inundated by the waters of Lake Bob Sandlin but became exposed during an episode of lowered water levels (about 10 feet below the normal pool elevation of 337 ft. amsl) at the lake due to drought conditions from late 2005 to early 2007. A large number of prehistoric artifacts were exposed on the landform over a ca. 2500 square meter area (0.6 acres), according to the site form, among them 490 sherds, several arrow points and dart points, as well as some pieces of lithic debris. The site was then inundated again, but a renewed drought in 2011 re-exposed the site. A moderately-sized collection of artifacts found at the site, primarily Caddo pottery sherds, at that time have been recently documented, and are reported on in this article.

CERAMIC SHERD ASSEMBLAGE

The documentation of prehistoric artifact collections from sites found along the shoreline of Lake Bob Sandlin in the Big Cypress Creek basin of East Texas (Nelson and Perttula 2003; Perttula et al. 2010a, 2012; see also Thurmond 1990) have demonstrated that sites at the lake have diverse temporal and spatial patterns, with an intensive Caddo occupation from the Middle (ca. A.D. 1200-1425) to Late Caddo (ca. A.D. 1430-1680) periods. The most intensive Caddo occupation along this stretch of the Big Cypress Creek valley took place in Late Caddo times, during the Titus phase (Perttula and Nelson 2003). The Wa'akas site appears to have been occupied by ancestral Caddo peoples during the early part of the Titus phase (ca. A.D. 1430-1550).

The ceramic sherd assemblage in the recently documented collection consists of 405 sherds, 51% of which have some form of decoration (Table 1). The plain to decorated sherd ratio (P/DR) is 0.98. This relatively low P/DR is consistent with a Late Caddo ceramic assemblage in the Big Cypress Creek basin.

Table 1. Sherd Assemblage from the Wa'akas Site.

Ware	Rim	Body	Base	N
Plain	2	182	16	200
Utility	17	145	-	162
Fine	16	27	-	43
Totals	35	354	16	405

Of the decorated sherds, almost 80% are from utility ware jars; 49% of the rim sherds in the collection are from utility wares (see Table 1). The remainder of the decorated sherds (21%) are from engraved fine ware carinated bowls and compound bowls, with only a few sherds from bottles. Almost 46% of the rims are from fine ware vessels. Plain ware rims account for only 5.7% of the rims, suggesting that plain ware vessels (bowls and carinated bowls) were uncommon in the Wa'akas site ceramic assemblage, and that the assemblage is about equally split between utility wares and fine wares.

Among the utility wares, sherds from Bullard Brushed vessels with brushed rim and/or body surfaces are by far the most common at the Wa'akas site, representing 54% of the utility ware sherd sample (Table 2), and 35% of the utility ware rims (Figure 1a-f). The majority of the brushed-incised and brushed-punctated sherds (Figure 2a) are also likely from Bullard Brushed vessels (see Suhm and Jelks 1962:21). Other important utility wares at the site include La Rue Neck Banded rim and body sherds (n=11, 6.8% of the sample, but 29% of the rims) (Figure 3a-c), including one sherd with a neck banded rim and a brushed body, and Maydelle Incised jar sherds (Figure 4b). These sherds, which represent 16% of the utility ware sherd sample and 12% of the rims, have simple diagonal and diagonal opposed incised lines (Suhm and Jelks 1962:103).

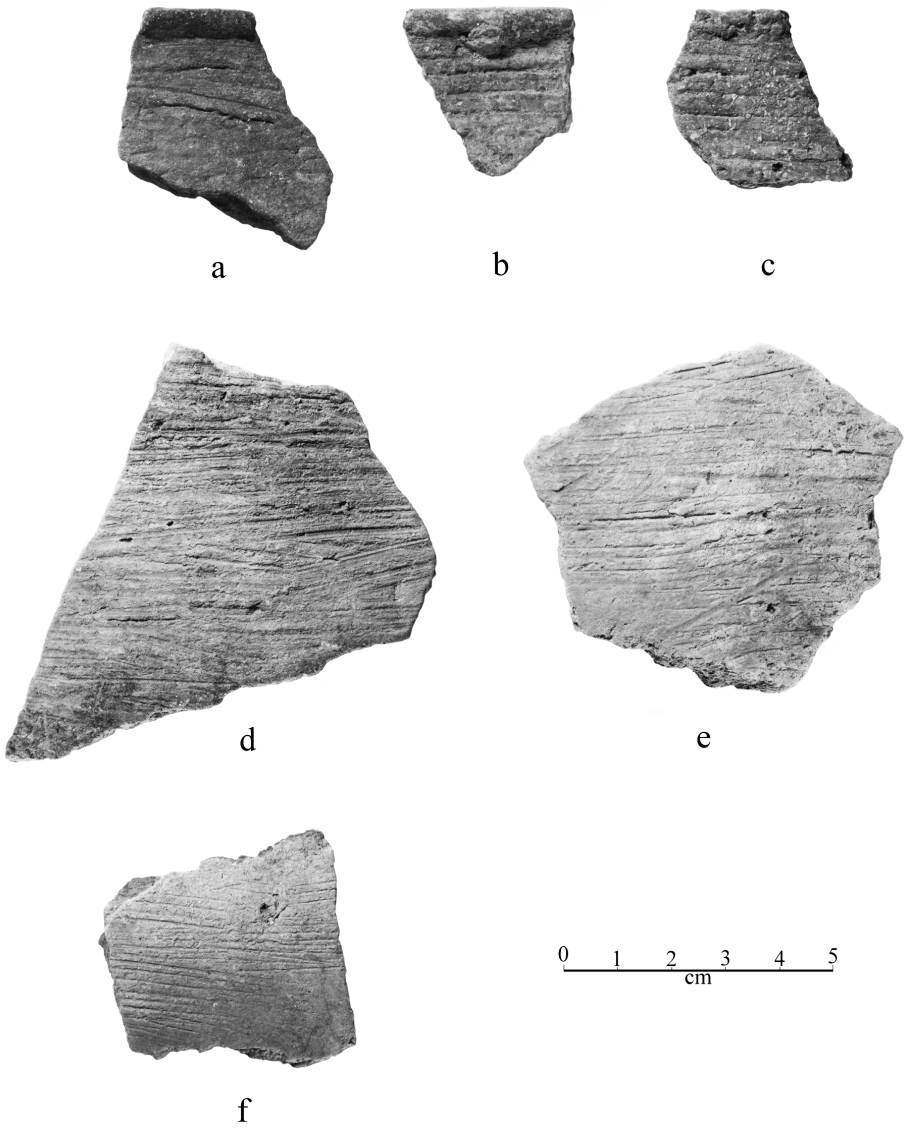

Figure 1. Brushed rim and body sherds: a-c, horizontal brushed rims; d-f, parallel (vertical) brushed body sherds.

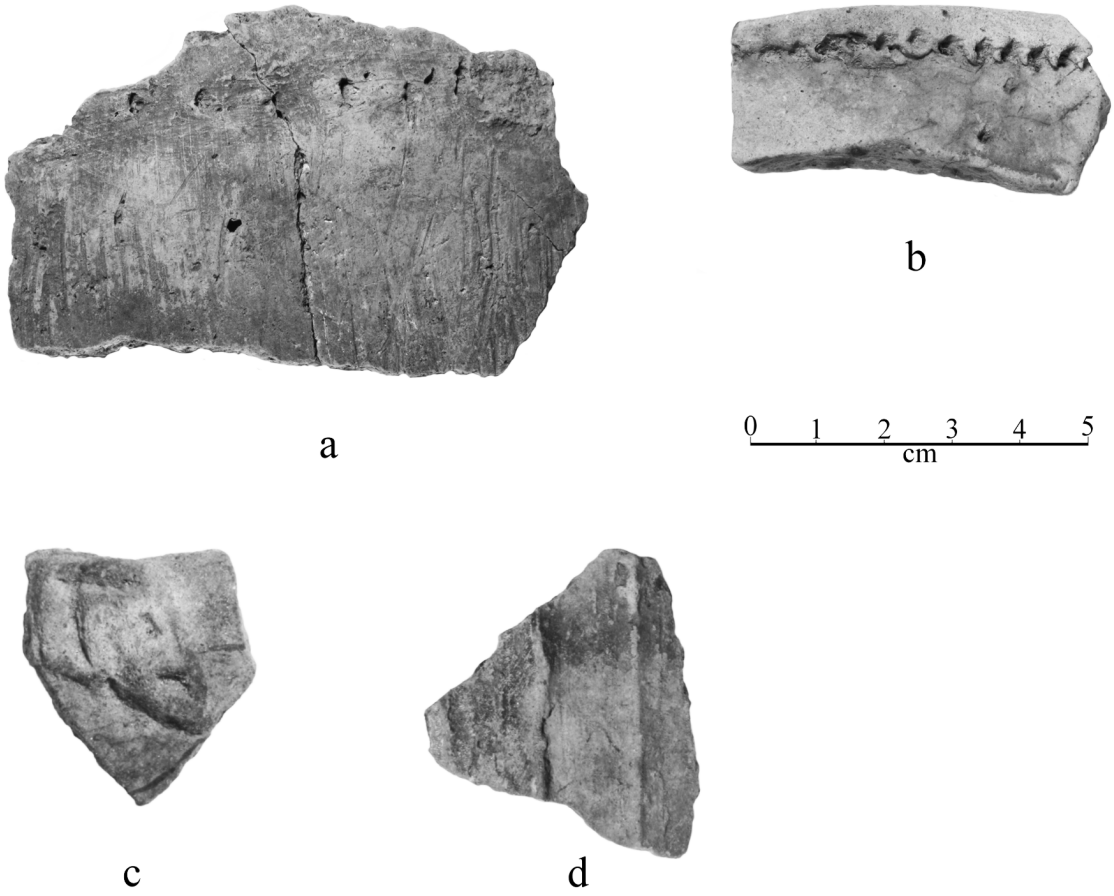

Figure 2. Other Utility ware sherds from the Wa'akas site: a, tool punctated row at rim-body juncture and vertical brushed body; b, tool punctated rim; c, appliqued body sherd; d, Belcher Ridged, *var. Byram Ferry* body sherd.

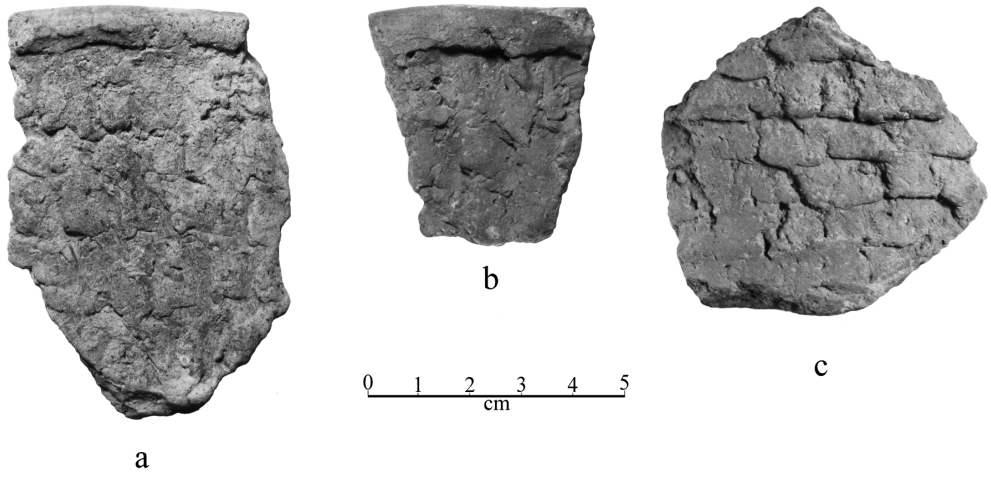

Figure 3. La Rue Neck Banded sherds: a-b, rim sherds; c, body sherd.

Table 2. Utility Ware Sherds Decorative Methods and Elements.

Decorative Method and Element	Rim	Body	N
Appliqued (n=8, 4.9%)			
Triangle element	-	1	1
Straight appliqued fillet	-	1	1
Straight appliqued ridge	-	3	3
Parallel appliqued ridges	-	3	3
Appliqued-Incised (n=2, 1.2%)			
Circular appliqued fillet and circular incised lines around fillets	-	1	1
Straight appliqued ridge and parallel incised lines	-	1	1
Brushed (n=88, 54%)			
Horizontal	5	2	7
Vertical	1	5	6
Parallel	-	70	70
Opposed	-	3	3
Diagonal	-	2	2
Brushed-Appliqued (n=2, 1.2%)			
Parallel brushed and straight appliqued ridge	-	1	1
Parallel appliqued ridges and brushing between ridges	-	1	1
Brushed-Incised (n=15, 9.2%)			
Parallel brushed-incised	-	11	11
Parallel brushed-diagonal incised over the brushing	-	3	3
Diagonal incised [on rim] and horizontal brushed on body	-	1	1
Brushed-Punctated (n=1, 0.6%)			
Horizontal brushed [on rim] and tool punctated row thru brushing [on rim]; Vertical brushed [on body]	-	1	1
Incised (n=26, 16%)			
Single straight line	-	7	7
Diagonal lines	-	2	2
Diagonal opposed lines	2	1	3
Parallel lines	-	14	14
Incised-Punctated (n=1, 0.6%)			
Straight incised line and tool punctated row	-	1	1
Incised-Punctated-Appliqued (n=2, 1.2%)			
Diagonal incised lines, tool punctated row, and horizontal appliqued ridge	-	1	1
Tool punctated row under lip, vertical appliqued ridge, horizontal and diagonal incised lines	1	-	1

Table 2., cont.

Decorative Method and Element	Rim	Body	N
Neck Banded (n=10, 6.2%)			
Horizontal neck banded rows	5	5	10
Neck Banded-Brushed (n=1, 0.6%)			
Horizontal neck banded rows [on rim] and diagonal brushed [on body]	-	1	1
Pinched (n=1, 0.6%)			
Parallel pinched ridge	-	1	1
Punctated (n=5, 3.1%)			
Tool Punctated Row/Rows	-	2	2
Tool Punctated row below the lip	2	-	2
Opposed diagonal tool punctated rows	1	-	1

The addition of appliqued ridges and fillets on utility ware body sherds (see Figure 2c), as well as appliqued-incised body sherds (see Table 2), suggests that in this assemblage appliqued elements were restricted to vessel body embellishments. The simple straight appliqued ridges and fillets may be from McKinney Plain vessels, while the appliqued-incised sherds are probably from more complicated Harleton Appliqued vessels (Suhm and Jelks 1962:65, 97). There is one jar rim sherd with four rim peaks that has a tool punctated row under the vessel lip, a broad vertical appliqued ridge under the rim peak and extending down the rim and bisecting a second tool punctated row, as well as horizontal and diagonal incised lines radiating from the appliqued ridge (see Figure 4a).

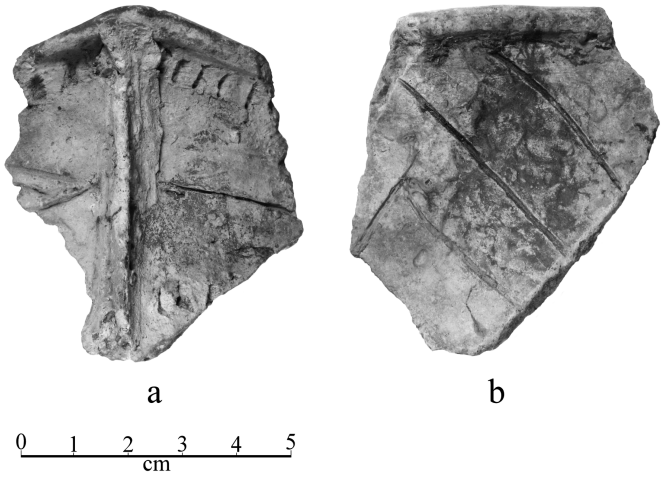

Figure 4. Additional utility ware sherds: a, rim peaked jar with incised, tool punctated, and appliqued decorative elements; b, Maydelle Incised rim sherd.

One body sherd has multiple narrow but widely-spaced straight appliqued ridges, with parallel brushing marks between the ridges (Figure 2d). This sherd may be from a Belcher Ridged, *var. Byram Ferry* vessel (Girard 2007:15 and Figure 5a-b). Radiocarbon dates from the Byram Ferry site on the Red River in Northwestern Louisiana suggest this variety of Belcher Ridged was made between cal A.D. 1399-1522 (Girard 2007:Table 1), consistent with its appearance in this early Titus phase site. The other brushed-appliqued sherd appears to be from a Pease Brushed-Incised jar that had panels of vertical brushing marks on the vessel body that were divided by vertical appliqued ridges (see Suhm and Jelks 1962:119).

About 3% of the utility wares—and 18% of the utility ware rims—have tool punctated designs on the rim of jars. The rims would have had several horizontal rows of punctations, beginning under the lip (see Figure 2b), mid-way on the rim, and a third row at the rim-body juncture. If the remainder of the vessel was plain (which is not known in this case), these sherds could be classified as Mockingbird Punctated, a Titus phase utility ware type (Perttula 2005). Another rim has diagonal opposed rows of tool punctations (see Table 2).

The fine ware sherds from the Wa'akas site are predominately from engraved carinated bowls, compound bowls, and bottles; bottle sherds are rare (7% of the fine wares) (Table 3). As far as can be determined from the rim and body sherds in the collection, the carinated bowls and compound bowls are from several recently defined different varieties of Ripley Engraved (see Perttula et al. 2010b, 2010c, 2011). One of the few bottle sherds is from a Wilder Engraved bottle.

Table 3. Fine Ware Engraved Sherd Decorative Elements.

Decorative Element	Rim	Body	N
Carinated Bowls and Compound Bowls (n=40, 93%)			
Interior engraved line	-	1	1
Arcing circle	-	1	1
Continuous scroll	4	-	4
Cross-hatched scroll fill zone	-	1	1
Diagonal engraved line	-	1	1
Excised zone	-	1	1
Horizontal engraved line under lip	2	-	2
Horizontal engraved lines and excised bracket	1	-	1
Negative cross-hatched oval	1	-	1
Opposed engraved lines	-	2	2
Oval-shaped element	-	1	1
Parallel engraved lines	-	1	1
S-shaped element and scroll	1	-	1
Scroll and circle	1	-	1
Single straight engraved line	-	7	7
Slanted scroll	6	4	10
Slanted scroll and semi-circle	-	1	1
Slanted scroll and negative oval	-	1	1
Slanted scroll and cross-hatched zone	-	2	2
Bottles (n=3, 7%)			
widely-spaced curvilinear lines	-	2	2
scroll with thickened scroll arm	-	1	1

Most of the engraved rims are from Ripley Engraved vessels with continuous scroll (*var. Carpenter*) (Figure 5a-b, d), horizontal scroll (*var. Pilgrims*), scroll with S-shaped divider elements (*var. Gandy*) (Figure 5g), and scroll and circle (*var. Galt*) motifs on the rim panel (Figure 5f); *var. Carpenter* is the best represented in this rim sherd sample (see Table 3). Another six rims have slanted scroll elements, but not enough of the scroll design is present to identify the particular variety; slanted scrolls are present in six different defined Ripley Engraved varieties. Other sherds with fill zones are from either the upper or lower part of scroll arms, and they can include cross-hatched areas and negative ovals (Figure 5e), while other sherds have engraved divider elements, probably from a red-slipped *var. Carpenter* vessel (see Figure 5c); again, the form of the scroll arm decorative elements are found on a number of varieties of Ripley Engraved. The one body sherd with an arc of circular or semi-circular lines may be from a Ripley Engraved, *var. Caldwell* vessel with a scroll and semi-circle motif (Figure 5h).

The Wilder Engraved bottle sherd has a portion of one scroll arm with a thickened excised zone where the scroll would have passed above and below the central circle where the upper and lower scroll arms would

meet (Suhm and Jelks 1962:155). The other two bottle sherds, including one with red pigment rubbed in the engraved design (see Figure 5i), have widely-spaced curvilinear engraved lines; they are from either Ripley Engraved or Wilder Engraved bottles.

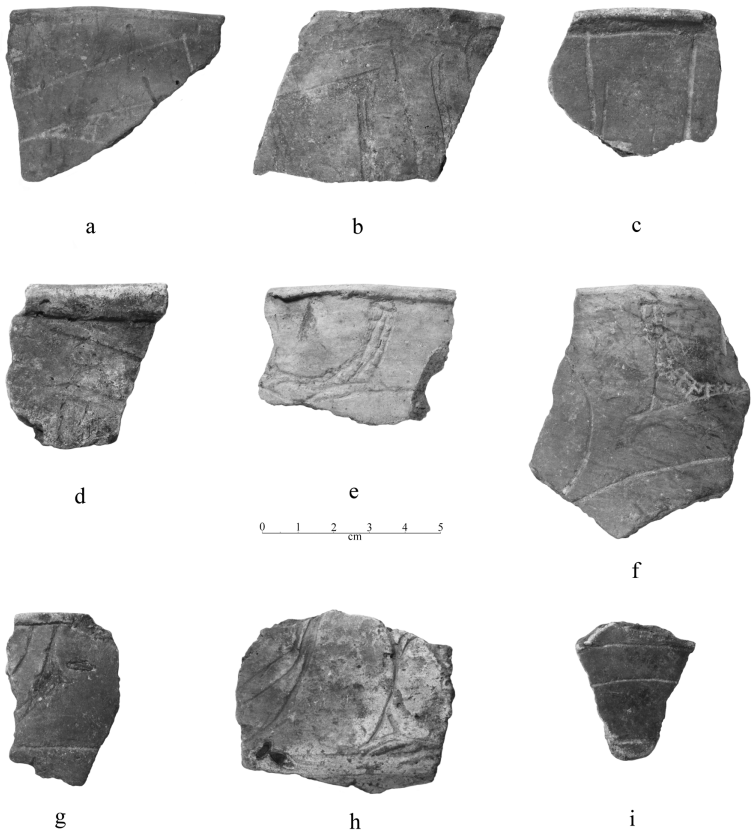

Figure 5. Engraved rim and bottle sherds from the Wa'akas site: a-b, d, Ripley Engraved, *var. Carpenter* rim sherds; c, engraved divider elements, probably from a Ripley Engraved, *var. Carpenter* vessel; e, engraved fill zone with a negative oval element; f, Ripley Engraved, *var. Galt* rim sherd; g, Ripley Engraved, *var. Gandy* rim sherd; h, rim sherd from a possible Ripley Engraved, *var. Caldwell* vessel; i, bottle sherd.

Titus phase ceramic assemblages in the Lake Bob Sandlin area along Big Cypress Creek and tributaries tend to be dominated by sherds from vessels tempered with grog or crushed sherds (Nelson and Perttula 2003; Perttula et al. 2010a). The Wa'akas site is no exception, as more than 91% of the sherds are tempered with grog. The use of crushed and burned bone is a decidedly secondary temper choice, as 8.6% of the sherds in this documented collection have bone temper (Table 4), sometimes found in association with grog temper inclusions.

Table 4. Use of Bone Temper in the Ceramic Sherd Assemblage.

Ware	No. of Sherds Sherds	Bone-Tempered	Percentage Bone-tempered
Plain	200	17	8.5
Utility	162	13	8.0
Fine	43	5	11.6
Totals	405	35	8.6

Fine ware sherds from the site had higher proportions (11.6%) of bone-tempering among the three wares in the assemblage (see Table 4). However, the use of bone temper in vessel manufacture ranges from only 8.0-11.6% for all three wares.

OTHER CLAY ARTIFACTS

There is a single clay coil fragment (41 x 19 mm in length and width, and 15.5 mm in thickness), tempered with grog, in the 2011 collection. The coil fragment is clear evidence for the on-site manufacture of ceramic vessels by Caddo potters,

SUMMARY

The Wa'akas site (41CP490) was first recorded in 2007, after a drought episode at Lake Bob Sandlin on Big Cypress Creek, after which it was inundated again. It was re-exposed in 2011, and a collection from the site was gathered at the time that primarily consisted of Caddo ceramic sherds. This collection has been documented and the results summarized herein.

The decorated sherds in the assemblage are from a Late Caddo period, Titus phase ceramic tradition. The assemblage is dominated by sherds from utility ware jars, followed by fine ware engraved carinated bowls, compound bowls, and bottles; plain wares (bowls and carinated bowls) only account for 7% of the rims.

The utility ware vessel sherds at the Wa'akas site have a diverse range of decorations, including appliqued, brushed, incised, incised-punctated, punctated, pinched, and neck banded, often with one kind of decorative method and element on the rim and a different decorative method and element on the body. The principal types identified in the utility wares include Maydelle Incised, Bullard Brushed, La Rue Neck Banded, Mockingbird Punctated, Harleton Appliqued, and Pease Brushed-Incised. The jars placed probably served as containers of foodstuffs as well as cooking containers.

The engraved fine ware vessel sherds feature scrolls, continuous scrolls, scrolls and circles, as well as scroll arms with excised brackets, negative ovals, and S-shaped elements as documented on a number of recognized Ripley Engraved varieties, particularly Ripley Engraved, *var. Carpenter*. Bottle sherds are from Ripley Engraved and Wilder Engraved types. Ripley Engraved and Wilder Engraved fine wares were apparently the main fine wares made and used in the Wa'akas community.

The known age range of the Titus phase is from ca. A.D. 1430-1680, but the seriation of Ripley Engraved rim motifs, as discussed in Perttula (1992:243-249), may provide more specific evidence of when the Wa'akas site was occupied during this 250 year interval. This frequency seriation was developed through a co-association of arrow point caches of different types (Perdiz, Bassett, Maud, and Talco) with distinctive Ripley Engraved rim motifs at a number of cemeteries (see Thurmond 1990; Turner 1978), namely the continuous scroll (*var. Carpenter*), the scroll (*var. Gandy*), scroll and circle (*var. Galt*), and the pendant triangle (*var. McKinney*). Presuming that the Perdiz arrow point was the earliest type used by Titus phase peoples, followed by the Bassett, Maud, and Talco points in later burials, the seriation suggests that the earliest style of Ripley Engraved was the *var. Carpenter* motif, then next came *var. Gandy* vessels, followed by *var. Galt*, and *var. McKinney* vessels (see Perttula 1992:Table A-2). The earliest Titus phase sites, those dating from ca. A.D. 1430-1550, would be expected to have considerable amounts of *var. Carpenter* and *var. Gandy* vessel sherds relative to the other main rim motifs, and this is the case at the Wa'akas site (although there are not many rim sherds where the distinctive rim motifs can be identified). Thus, the available ceramic decorative

evidence points to a Caddo occupation at the site prior to European contact, sometime between the early 15th century and the mid-16th century A.D.

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APPENDIX 1, CHIPPED STONE LITHIC ARTIFACTS FROM THE WA'AKAS SITE (41CP490)

A few chipped stone lithic tools and lithic debris are in the collection from the Wa'akas site, and these appear to relate to Late Archaic and Woodland use of the landform. The chipped stone tools include several dart points made from non-local cherts and local coarse-grained quartzite, among them single specimens of Bulverde (Figure 6a), Delhi (Figure 6b), Edgewood (Figure 6c), and a probable contracting stem Gary point (Figure 6d). There is also part of a serrated mid-section of another dart point (Figure 7c), made on a heat-treated local quartzite.

Also present in the chipped stone tools is a end-side scraper of a non-local grayish-brown chert (see Figure 7a) and a large quartzite bifacial preform. This artifact is broken at the distal end, but is well-shaped with sinuous lateral edges. There is no use-wear evidence on the piece to indicate that it may have been used as a large knive or cutting tool.

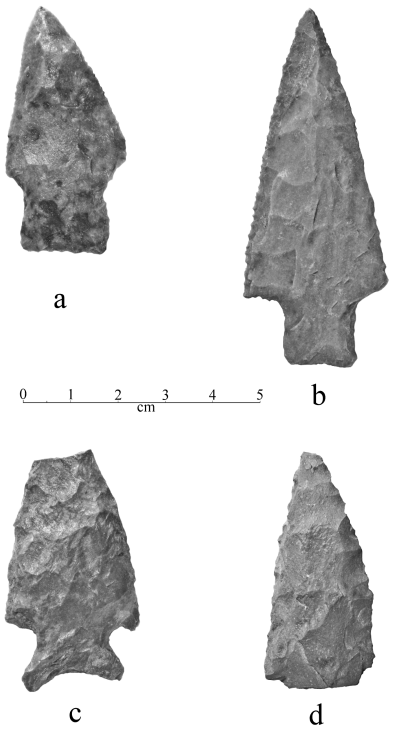

Figure 6. Dart points: a, Bulverde; b, Delhi; c, Edgewood; d, probable Gary.

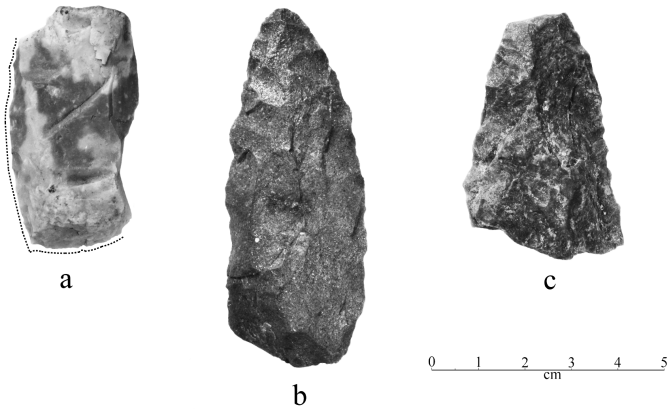

Figure 7. Other chipped stone tools from the Wa'akas site: a, end and side scraper (dotted lines indicate areas of use-wear and retouch); b, large bifacial preform; c, dart point mid-section.

Stable Isotope Analysis from a Burial at the Pipe Site (41AN67) in Anderson County, Texas

Diane Wilson, Timothy K. Perttula, and Mark Walters

INTRODUCTION

In this article, we present the findings of stable isotope analysis (carbon, nitrogen, and oxygen) from an analysis of human remains from a burial at the Pipe site (41AN67). The Pipe site is a late 15th-mid-16th century Caddo settlement and cemetery in the Lake Palestine area in the upper Neches River basin in East Texas that was investigated by Buddy Calvin Jones in 1968 and Southern Methodist University in 1969.

INFORMATION ON THE PIPE SITE

Buddy Jones identified and investigated the Pipe site (41AN67) in 1968. The site was on a low terrace or lower toe slope on the west side of the Neches River valley, and a photograph taken by Jones at the time showed the site area in a pasture, with a tree-covered floodplain to the north and east. The Pipe site had a substantial midden deposit as well as a cemetery with 21 burials (Figure 1).

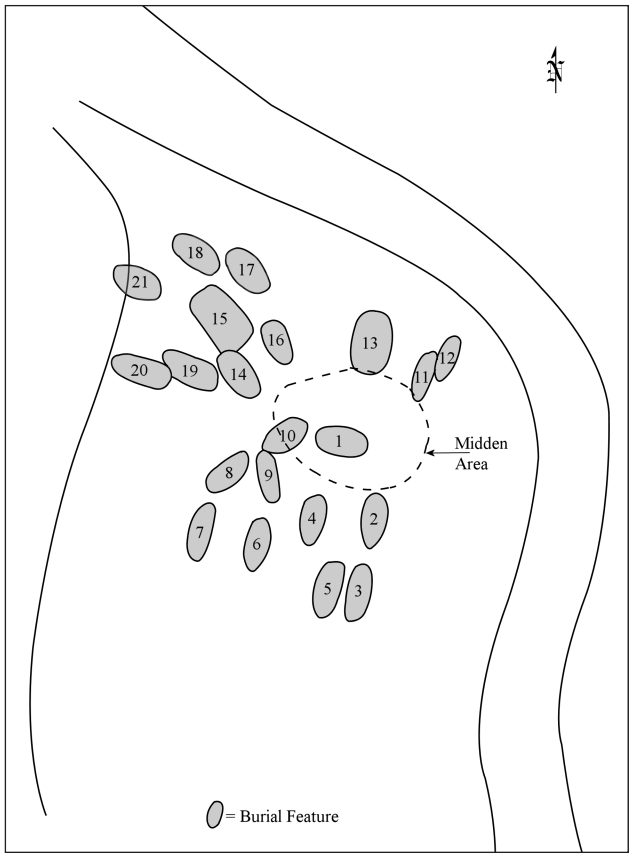

Figure 1. Map of the Pipe site redrawn from a Buddy Jones map on file at the Gregg County Historical Museum.

In 1969, a year after this site had been excavated by Buddy Calvin Jones, Southern Methodist University conducted their own excavations at the Pipe site (which they called the Ferguson site since they were unaware of the Jones excavations) before the construction of Lake Palestine (Anderson et al. 1974:121-134). Their work was concentrated in a midden deposit near the northeastern extent of the landform (in the same area of the landform depicted in Jones' map, see Figure 1). No Caddo burials were identified during the SMU work, not too surprising given that the cemetery with 21 Caddo burials had been completely excavated a year or more before. No habitation features were documented in the SMU excavations, again not surprising in that the midden was an area of trash deposits and habitation features (i.e., pits and post holes from domestic structures) would be expected to not occur in the midden, but in general proximity to, but outside of, the trash midden itself. SMU's archaeological investigations rarely strayed from the midden (Anderson et al. 1974:Figure 58).

What was recovered at the Pipe/Ferguson site was an abundance of Frankston phase ceramic vessel sherds (n=7964, including Poynor Engraved, Hume Engraved, Maydelle Incised, Bullard Brushed, Killough Pinched, and LaRue Neck Banded) and ceramic pipe sherds (n=43), mussel shell fragments and animal bones, and a modicum of chipped stone tool artifacts. The latter included 16 arrow points and fragments (of the Perdiz type), 13 flake tools and scrapers, and only 297 pieces of lithic debris.

There are two radiocarbon dates from the Pipe/Ferguson site (Perttula 1997:Table 1), both obtained from the SMU excavations (Anderson et al. 1974), which is believed to be the same site as the Pipe site investigated by Buddy Calvin Jones. Both dates are on a wood post fragment buried in the midden deposits. These dates, using IntCal09 (Reimer et al. 2009) to calibrate their conventional ages, have calibrated age ranges at 2 sigma (95% probability) of A.D. 1529-1683 (Tx-1275) and A.D. 1444-1644 (Tx-1276). If these two calibrated age ranges accurately capture the temporal extent of the Caddo occupation, then it would appear that the site was occupied through most of the 16th and 17th century A.D. The mean calibrated age range of these dates is A.D. 1487-1663.

A seriation of ceramics from Early to Historic Caddo period sites developed for the upper Neches River/Lake Palestine area, indicates that the Pipe/Ferguson site more likely dates to the middle part of the Frankston phase (Perttula 2011a:Table 2). This group of sites has been estimated to date between ca. A.D. 1480-1560 (Perttula 2011b). As mentioned above, the mean age of the two calibrated radiocarbon dates from the Pipe/Ferguson site is A.D. 1487-1663. This mean age is in agreement regarding the estimated initial occupation of the site taking place around the 1480s, but there is a broad divergence on when the end of the Caddo occupation dates to, either A.D. 1560 from the ceramic seriation data or the A.D. 1660s from the calibrated radiocarbon age ranges. Given the absence of Patton Engraved pottery sherds from the Pipe/Ferguson site (Anderson et al. 1974:Table 40), and an abundance of Poynor Engraved fine ware sherds in the assemblage, it is doubtful that the Caddo occupation here could have lasted as late as ca. A.D. 1650 (the beginning of the heyday of Patton Engraved manufacture and use), but how much earlier than that is unknown. Simply on the basis of the seriation results, it is conjectured that the occupation at the Pipe site/Ferguson site ended closer to ca. A.D. 1560 than it did to ca. A.D. 1650.

RESULTS OF THE STABLE ISOTOPE ANALYSIS

The human remains sampled from the Pipe site were described in a previous study (Wilson 2006). They represented the remains of an adult male described in the Buddy Jones collection as Lot 29, B-11 Skull No 2, suggesting it was part of a multiple burial in the cemetery. Because the individual was represented by only a right femur, dietary reconstruction was not possible at the time of initial analysis.

This study uses stable isotopes as a means to reconstruct the diet for the individual recovered from the Pipe site in the Buddy Jones collection. A sample of the right femur was sent to the Bone Chemistry Laboratory, Department of Anthropology, at the University of Florida, Gainesville, where the sample was prepared and processed. Results were provided for $\delta^{13}C$ on collagen and apatite, $\delta^{15}N$ on collagen, and $\delta^{18}O$ on apatite.

Carbon stable isotopes are used to examine dietary sourcing, ultimately for plants that utilize different photosynthetic pathways: C_3, C_4, and CAM. All trees, woody shrubs, herbs, and temperate shade-loving grasses are C_3 plants. Prior to the introduction of maize, Caddo food resources were C_3-based. The $\delta^{13}C$ values of C_3 plant resources have an assumed average of -26.5‰, while C_4 plants average -12.5‰ (Tieszen 1991; Ambrose 1993). CAM (Crassulacean Acid Metabolism) plants are mostly succulents and have $\delta^{13}C$ values that overlap C_3 and C_4 plants. They are not discussed in this article due to their lack of dietary contribution to Caddo diets. Nitrogen isotope ratios provide information about the trophic level and protein sources in the diet. Nitrogen isotopes are useful in discerning aquatic versus terrestrial components of the diet. Humans in terrestrial-based food webs typically have $\delta^{15}N$ values of 6-10‰, whereas consumers of fish may have $\delta^{15}N$ values that range as high as 15-20‰ (DeNiro and Schoeninger 1983; Hard and Katzenberg 2011). By convention, stable isotope ratios are expressed in the δ notation, in parts per thousand, read as ‰, relative to an international standard. For carbon the standard is the marine limestone PDB and for nitrogen it is what we refer to as AIR.

Collagen is the main protein in bone and dentin that provides the source for organic carbon. It is less subject to isotopic substitution than apatite, the mineral portion of bone. Controlled diet studies on animals show that bone collagen primarily reflects the protein dietary carbon source while apatite reflects the whole diet (Ambrose and Norr 1993; Tieszen and Fagre 1993; Jim et al. 2004). The collagen enrichment factor is the difference between the dietary and bone signature for carbon and is approximately 5‰ (van der Merwe and Vogel 1978; Sullivan and Krueger 1981; Lee-Thorpe et al. 1989). Apatite enrichment is assumed to be around 9.5‰ (Sullivan and Krueger 1981; DeNiro and Schoeninger 1983).

Oxygen isotopes are used for geographic origin determination and are affected by latitude, regional topography, and weather patterns. Delta ^{18}O decreases with distance to the earth's poles and increases with humidity in the local environment. To date, little use of oxygen isotopes has occurred in the Caddo archaeological region.

The results of the stable isotope testing are presented in Table 1. The $\delta^{13}C$ collagen result is higher than the mean for Late Caddo period sites in the Neches and Angelina River basins presented in Perttula et al. (2011) and raises the regional mean slightly (Table 2). This indicates a significant contribution of C_4 to the protein portion of the diet in the Pipe site male tested. During the Late Caddo period, there is significant variability in $\delta^{13}C_{collagen}$ values within and between sites. The Pipe site result falls within the standard deviation for the region and period.

Table 1. Stable isotope results for Lake Palestine, Lot 29 B-11, Skull 2 at the Pipe Site (41AN67).

Collagen yield	Percent collagen	C/N	$\delta^{13}C$ collagen ‰	$\delta^{15}N$ collagen ‰	$\delta^{13}C$ apatite ‰	$\Delta^{13}C$ apatite-collagen	$\delta^{18}O$ apatite ‰
0.0485g	0.00375	3.2	-13.20	7.02	-6.35	6.85	-9.50

Table 2. Late Caddo period Neches and Angelina River basins stable isotope data. Except data from the Pipe Site, all data from Perttula et al. (2011).

Site name	Site	δ13C collagen ‰	δ13C apatite ‰	δ15N collagen ‰
Pipe	41AN67	-13.20	-6.35	7.02
Lang Pasture	41AN38	-15.6	-9.2	9.7
Lang Pasture	41AN38	-18.7	-10.2	-
Lang Pasture	41AN38	-19.5	-9.7	-
Lindsey Park	41SM300	-21.8	-	-
Emma Owens Farm	41AN21	-13.9	-6.8	6.3
EW Hackney	41CE6	-12.8	-6.7	2.8
EW Hackney	41CE6	-	-7.4	8.9
JW Blackburn	41CE4	-	-7.7	-
JW Blackburn	41CE4	-9.7	-7.6	-
OL Ellis Farm	41AN54	-	-8.1	13.7
OL Ellis Farm	41AN54	-	-7.4	12.4
EW Henry Farm	41CE17	-13.3	-12.1	-
Fred McKee	41AN32	-12.2	-4.8	10.4
AH Reagor Farm	41CE15	-14.9	-	10.8
AH Reagor Farm	41CE15	-13.3	-6.7	-
Pierce Freeman Farm	41AN34	-14.8	-9.1	13.2
Lang Pasture	41AN38	-19.7	-8.7	-
Mean		-15.24	-8.03	9.52
Standard deviation		3.43	1.76	3.40

Like δ13C collagen, the δ13C apatite value is higher than the mean for the Late Caddo period in the Neches and Angelina River basins, but falls within the standard deviation for the time period. This result indicates that the individual from the Pipe site consumed more C4 dietary resources than the average for the region. Using Ambrose et al.'s (1997, 2003) formula, C4 contributed an estimated 62% of the dietary resources consumed by the tested individual at the Pipe site. In comparison, the average consumption of C_4 for Caddo individuals in the Neches and Angelina River basins from the Late Caddo period is 50%.

Nitrogen isotope values from the Pipe site individual were low compared to the mean for the region and time period (see Table 2). The $\delta^{15}N$ values for the region in the Late Caddo period are highly variable, indicating differences in protein resources, ranging from primarily beans to fish. The relatively low trophic value indicated by the $\delta^{15}N$ value combined with the relatively high $\delta^{13}C$ collagen and apatite values indicate a higher contribution of maize to the diet of the Pipe site individual than seen in most other Caddo individuals from the region.

CONCLUSIONS

In this study stable isotope testing has been used to reconstruct the diet for a Late Caddo period individual from whom only postcranial remains were present. In cases such as this, where teeth are lacking, stable isotope studies provide the only, as well as the most direct, method for determinations of diet.

With the use of stable isotope analysis we have been able to place the individual from the Pipe site into a regional context that shows a relatively varied diet, particularly in terms of protein sources. While the individual tested had a reasonably high contribution of maize to his diet, Figure 2 shows that he fits well within a small cluster of other individuals from the Late Caddo Neches and Angelina River basins. This cluster of four consists of adults from different sites: two males, one female, and one of indeterminate sex. Results are consistent with an intensified maize agricultural diet.

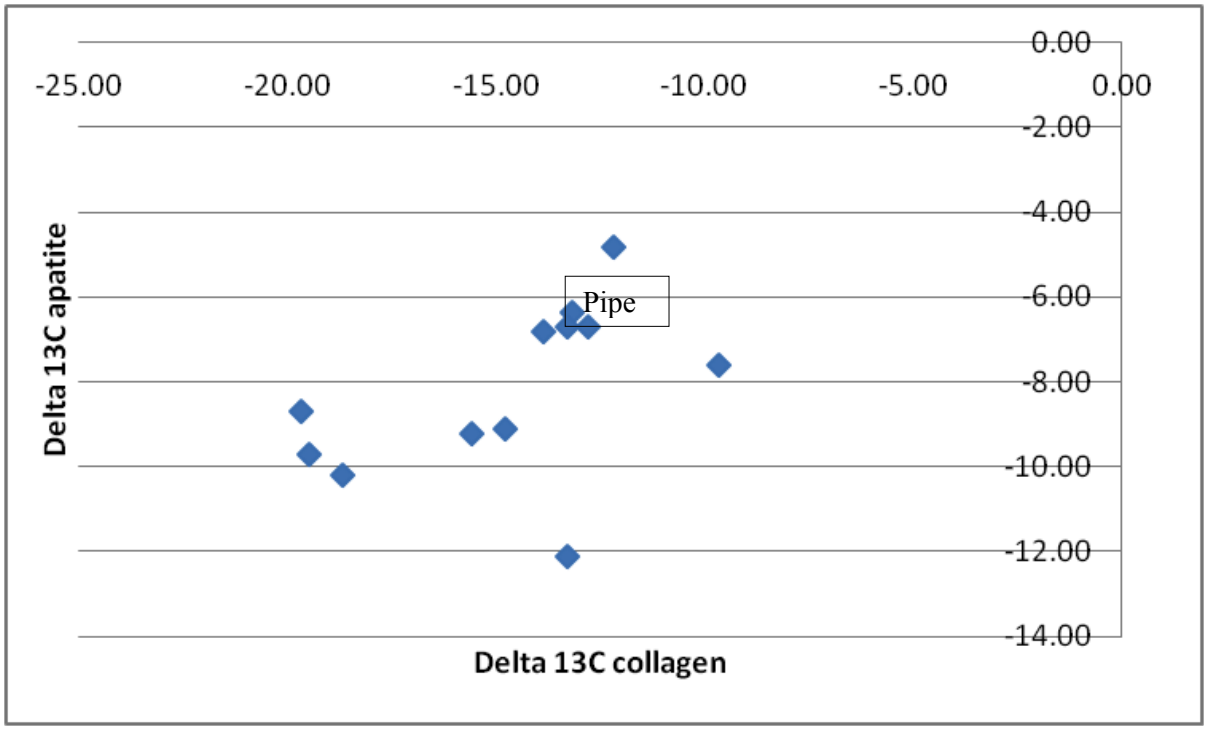

Figure 2. $\delta^{13}C_{apatite}$ plotted against $\delta^{13}C_{collagen}$ for the Late Caddo period Neches and Angelina River basins.

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